

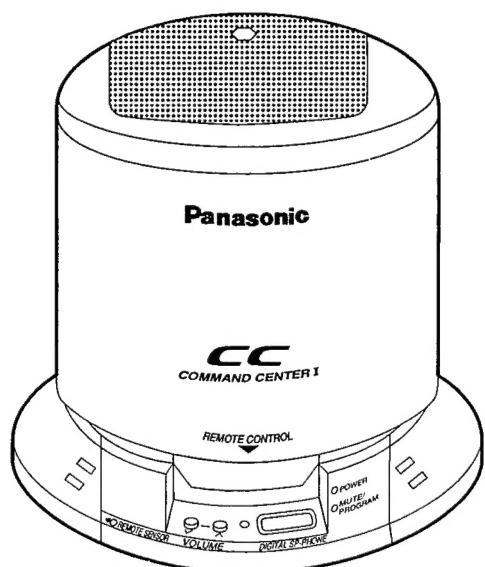
Service Manual

Telephone Conference System

Telephone Equipment

KX-TS700-B

(for U.S.A.)



■ SPECIFICATIONS

Power Source:	AC adaptor KX-TCA6 (DC12 V, 500 mA)
Dial Type:	Tone (DTMF)/Pulse
Redial:	Last dialed number each time the Redial button is pressed
Pause:	3.5 seconds per pause
Memory Capacity:	10 telephone numbers, up to 16 digits per station
Jacks:	DC IN/Telephone line
Speaker:	4" (10 cm) PM dynamic
Microphone:	3 condenser microphones
Dimensions (W×H):	67/32" × 73/32" (175 × 180 mm)
Weight:	2.08 lbs. (945 g)

Design and specifications are subject to change without notice.

Panasonic

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you mention the serial number, write down all 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover plastic parts, boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on worktable.
4. Do not grasp IC or LSI pins with bare fingers.

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LOCATION OF CONTROLS

Unit

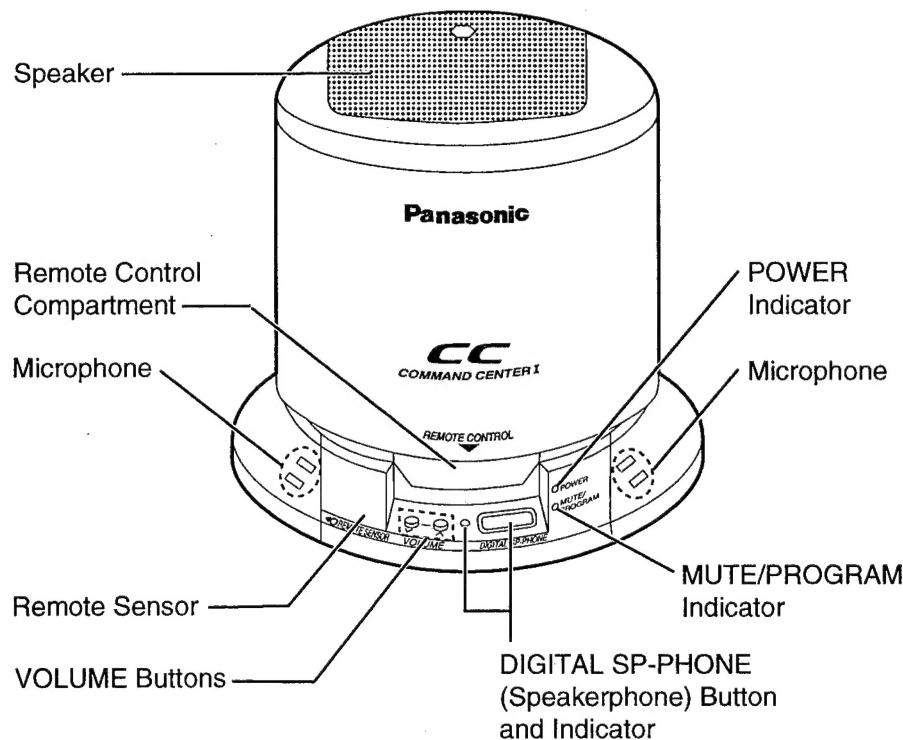


Fig.1

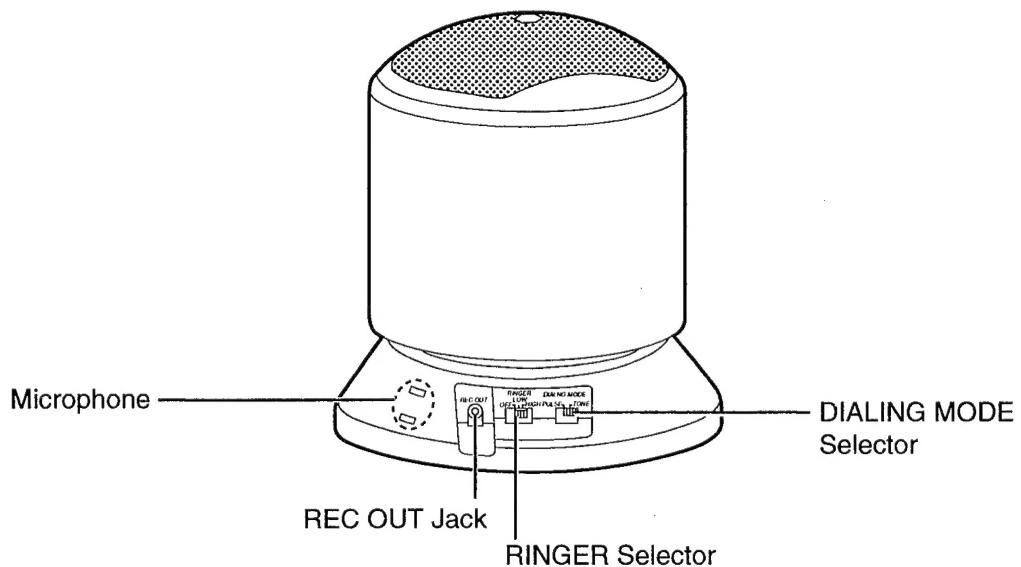


Fig.2

Remote Control

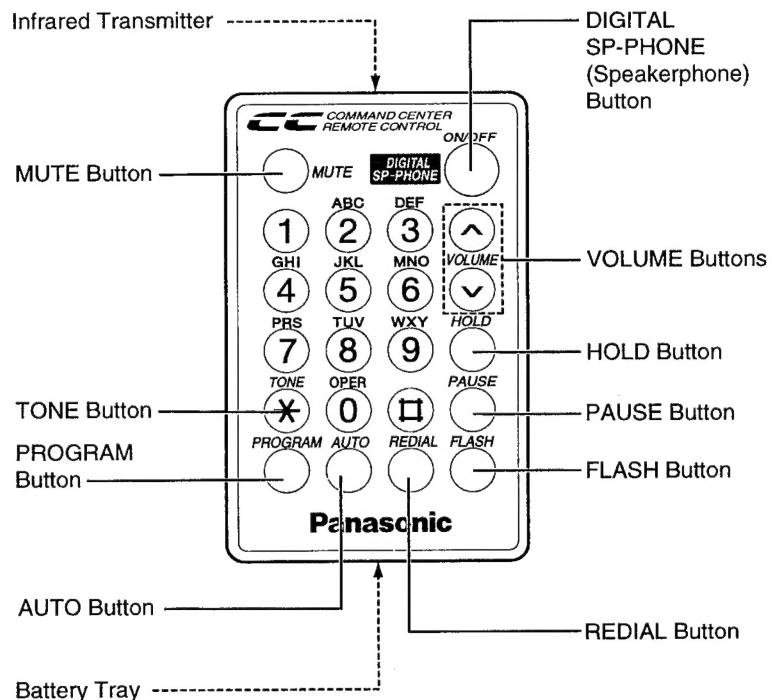


Fig.3

CONNECTION

- 1 Plug in the AC adaptor cord and the telephone line cord to the bottom of the unit.

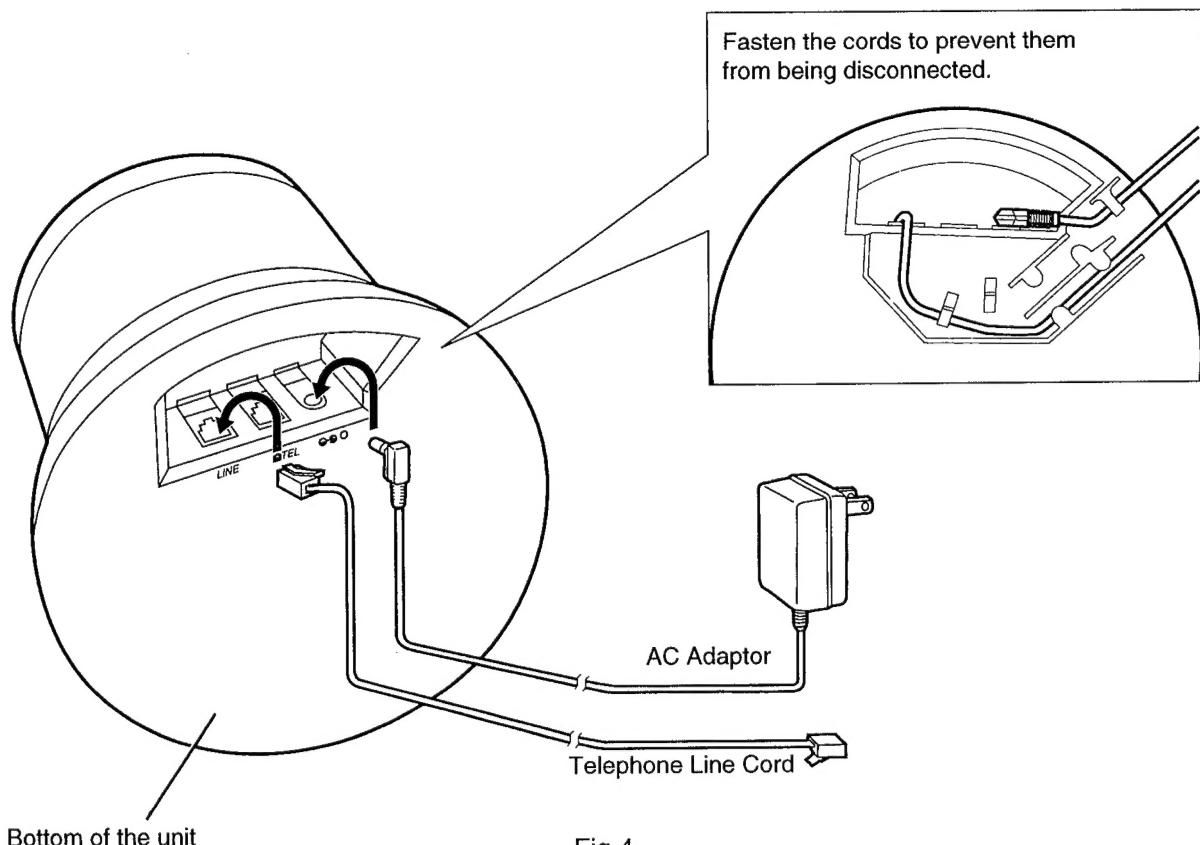


Fig.4

2 Connect the cords as shown.

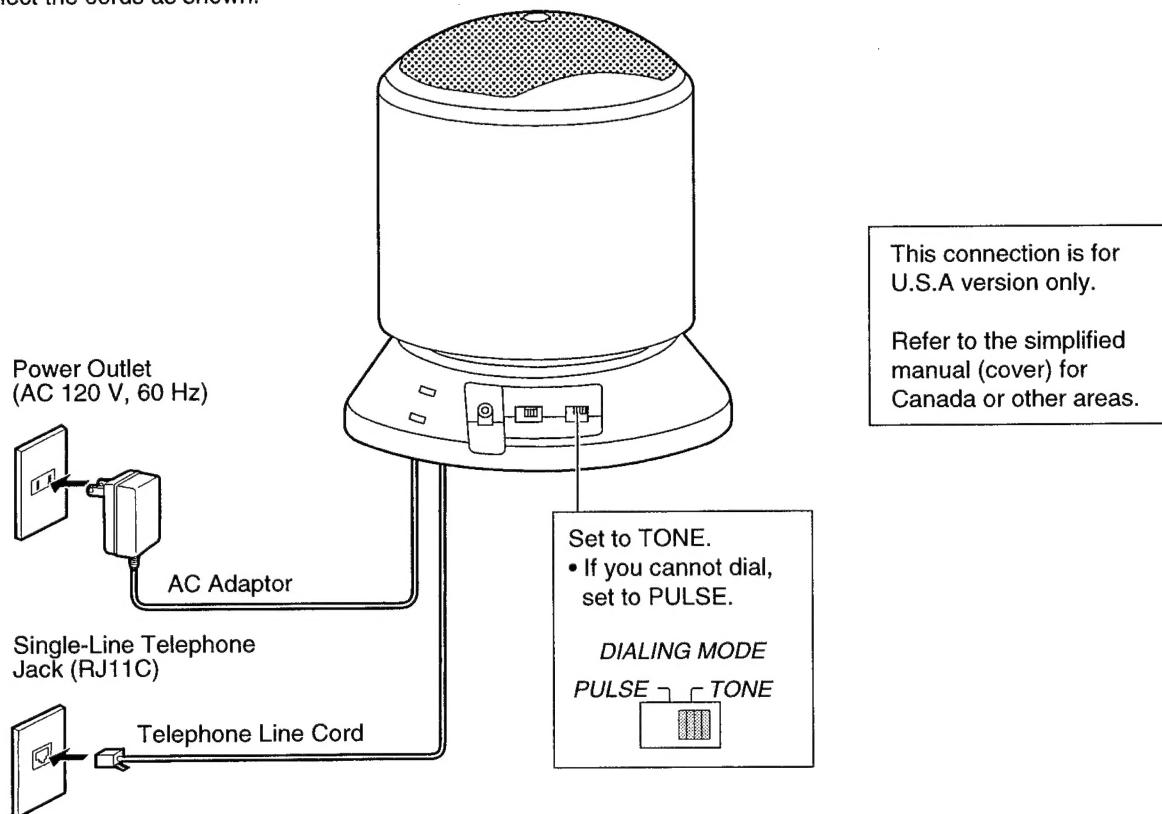


Fig.5

- USE ONLY Panasonic AC ADAPTOR KX-TCA6.
- The AC adaptor must remain connected at all times.
(It may feel warm during use. This is normal.)
- The POWER indicator lights while the AC adaptor is connected.

Adding Another Phone

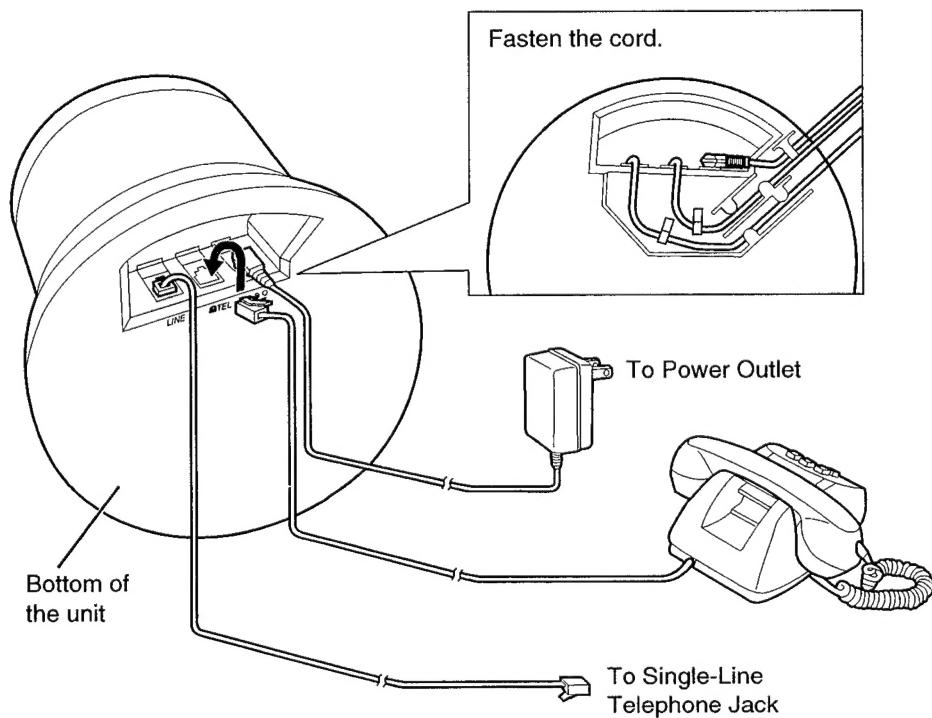
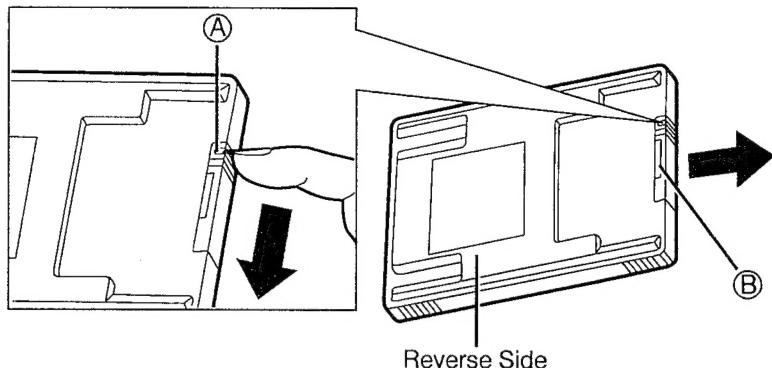


Fig.6

INSTALLING THE BATTERY IN THE REMOTE CONTROL

- 1** While pressing down notch **(A)**, pull out the battery tray by inserting your fingernail in notch **(B)**.



- 2** Install the battery with the plus side up, then insert the tray until it locks.

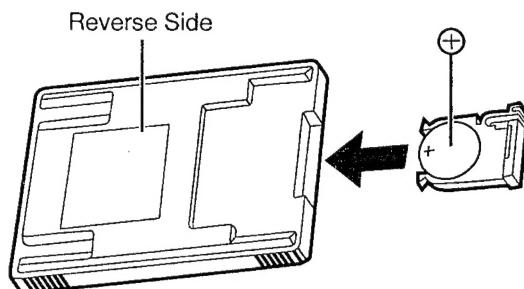


Fig.7

- Use the battery correctly.
- Install the battery properly.
- Keep the battery away from small children.

Battery Replacement:

- Replace the battery with a **Panasonic CR2025 lithium battery only**. Use of another battery may present a risk of fire or explosion.
- The battery life is about a year when a new Panasonic battery is used at room temperature. (It may vary depending on usage conditions and ambient temperature.)
- If the remote control only works when in close vicinity to the unit's remote sensor, replace the battery.

REMOTE CONTROL RANGE

When using the remote control, point the infrared transmitter towards the remote sensor within the unit's maximum operating range.

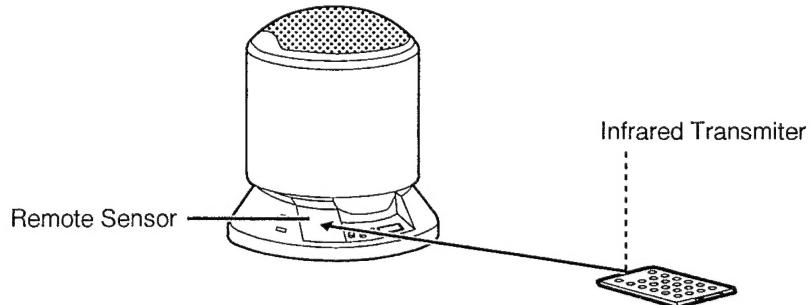
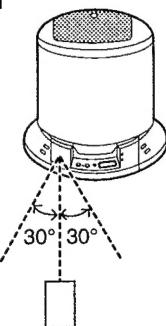


Fig.8

The maximum operating range is:

Horizontal



Distance

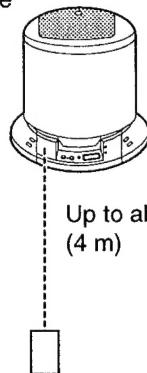


Fig.9

- The operating range may vary depending on the room lightning type (incandescent, fluorescent, etc.) or strength.

OPERATION

NEW OPERATION

Making Calls

- 1 Press **DIGITAL SP-PHONE** on the remote control.

- The DIGITAL SP-PHONE indicator on the unit lights.

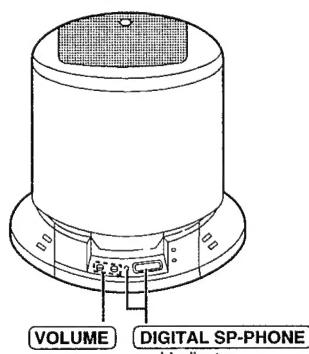
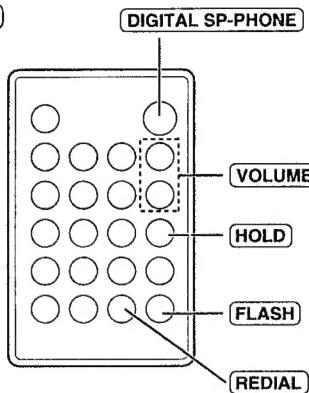
- 2 Dial a telephone number.

- If you misdeal, press **FLASH** firmly then dial again.

- 3 To hang up, press **DIGITAL SP-PHONE**.

- The indicator light goes out.

- You can also use **DIGITAL SP-PHONE** on the unit in steps 1 and 3.



To adjust the speaker volume (12 levels)

To increase, press **▲**. To decrease, press **▼**.

Full Duplex Digital Speakerphone

For best performance, please note the following:

- At the beginning of a call, both parties should speak alternately. This enables the unit to adapt to its environment and let both parties speak simultaneously.

To redial the last number

Press **DIGITAL SP-PHONE** → **REDIAL**.

To put a call on hold

press **HOLD**.

- The DIGITAL SP-PHONE indicator on the unit flashes.
 - If you put a call on hold for 6 minutes, a warning tone will sound.
- The call will be disconnected after a total of 10 minutes.

To release the hold

Press **DIGITAL SP-PHONE**.

- If another phone is connected on the same line, you can also release the hold by lifting its handset.

About the **DIGITAL SP-PHONE** button on the unit

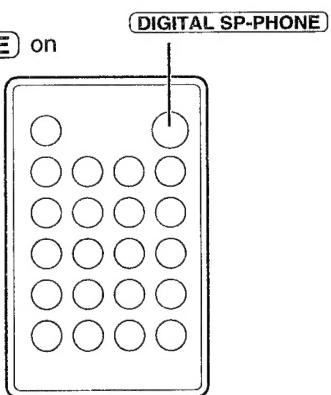
The **DIGITAL SP-PHONE** button on the unit uses non-radioactive luminescent material which can absorb light energy of sunlight or lamps (incandescent, fluorescent, halogen, etc.) and release this absorbed light for darkened room operation.

Notice:

- As the absorbed energy in the **DIGITAL SP-PHONE** button material decreases, the button brightness will fade naturally.
- Button brightness and duration depends on the amount of room lighting and exposure time.

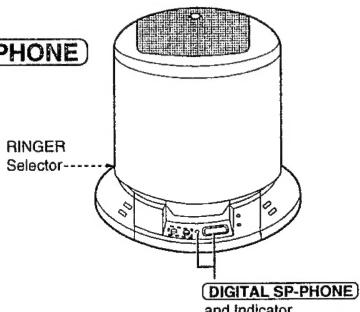
Answering Calls

1 Press **DIGITAL SP-PHONE** on the remote control.



2 To hang up, press **DIGITAL SP-PHONE**.

- You can also answer a call by pressing **DIGITAL SP-PHONE** on the unit.



To select the ringer volume

Set the RINGER selector to HIGH, LOW or OFF.

- When set to OFF, the unit will not ring.



Automatic Dialing

Storing Phone Numbers in Memory

You can store up to 10 numbers in the unit using the remote control.

The dialing buttons (0 to 9) function as memory stations. The **DIGITAL SP-PHONE** indicator light must be off. Point the infrared transmitter towards the remote sensor while storing.

1 Press **PROGRAM**.

- The MUTE/PROGRAM indicator on the unit flashes.

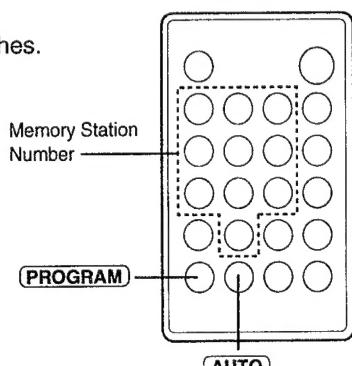
2 Enter a phone number up to 16 digits.

- If you misdial, press **PROGRAM** to end storing, then restart from step 1.

3 Press **AUTO**.

4 Press a memory station number (0 to 9).

- A confirmation tone sounds.
- To store other numbers, repeat steps 1 through 4.
- If the AC adaptor is disconnected for more than 3 days, the stored numbers should be confirmed again before dialing.



What the confirmation tone means

1 beep: The new number is stored.

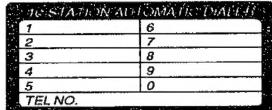
2 beeps: The number is the same as a previously stored one.

To erase a stored number

Press **PROGRAM** → **AUTO** → the memory station number (0 to 9) for the phone number to be erased.

Memory sticker

Use the included memory sticker as a name or phone number index for automatic dialing. Attach the sticker to the unit or in a convenient place.



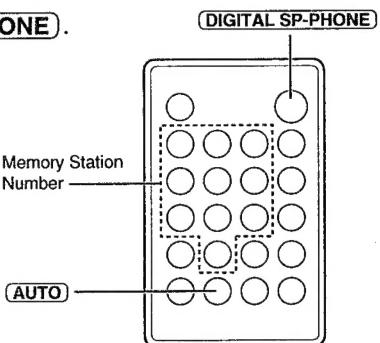
Dialing a Stored Number

1 Press **DIGITAL SP-PHONE**.

2 Press **AUTO**.

3 Press a memory station number (0 to 9).

- The stored number is dialed.



Special Features

For Call Waiting Service Users

Press **FLASH** lightly if you hear a call-waiting tone while talking.

- The first call is put on hold and you can answer the second call.
- To return to the first caller, press **FLASH** again.

Temporary Tone Dialing (For Rotary Service Users)

Press **TONE** before entering access numbers which require tone dialing.

- The dialing mode changes to tone. You can enter numbers to access answering systems, electronic banking services, etc. When you hang up, the mode returns to pulse.

If Your Unit is Connected to a PBX

We recommend you press **PAUSE** between the access number for an outside line and the phone number.

- Pressing **PAUSE** once creates a 3.5 second pause. This prevents misdealing when you redial or dial a stored number. (**PAUSE** counts as one digit.)

Muting Your Conversation

Press **MUTE** while talking. (The MUTE/PROGRAM indicator lights.)

- The other party cannot hear your voice but you can hear theirs.
- To resume the conversation, press **MUTE** again.

CPU DATA

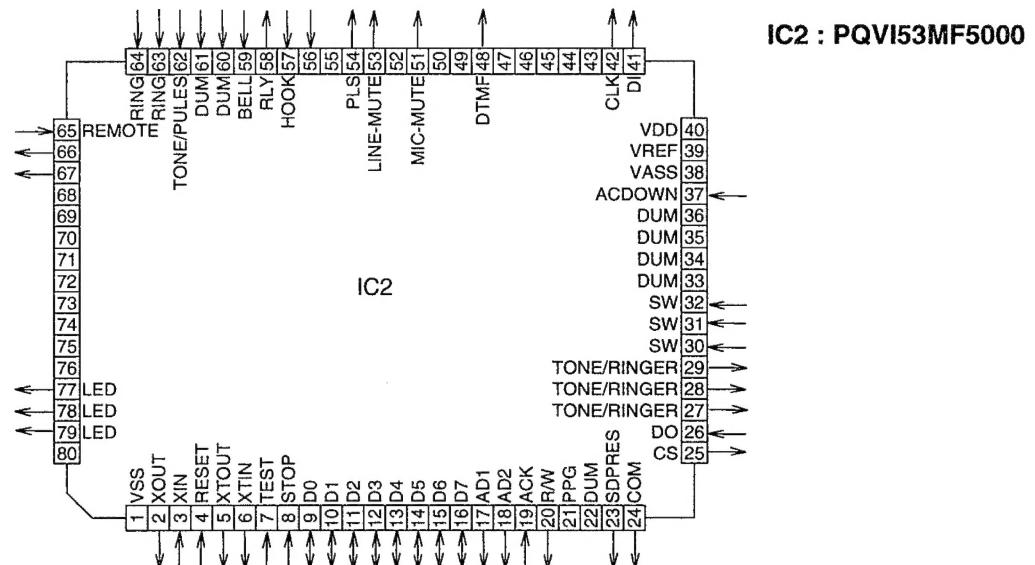


Fig.10

Note: High-Z means open Input port condition.

Pin No.	Description	I/O	High	High-Z	Low	Pin No.	Description	I/O	High	High-Z	Low
1	VSS	-	-	-	GND	41	DI (E-ROM)	O	DATA	-	DATA
2	XOUT	O	-	-	-	42	CLK (E-ROM)	O	CLOCK	-	CLOCK
3	XIN	I	-	-	-	43	{ Not Used				
4	RESET	I	Normal	-	RESET	44	{ Not Used				
5	XTOUT	O	-	-	Fixed	45					
6	XTIN	O	-	-	Fixed	46					
7	TEST	I	-	-	GND	47					
8	STOP	I	STOP	-	-	48	DTMF	O	Active	-	Normal
9	D0	I/O	DATA	Normal	DATA	49	{ Not Used				
10	D1	I/O	DATA	Normal	DATA	50					
11	D2	I/O	DATA	Normal	DATA	51	MIC MUTE	O	MUTE	-	Unmute
12	D3	I/O	DATA	Normal	DATA	52	Not Used				
13	D4	I/O	DATA	Normal	DATA	53	LINE MUTE	O	UNMUTE	-	Mute
14	D5	I/O	DATA	Normal	DATA	54	PLS	O	-		
15	D6	I/O	DATA	Normal	DATA	55	Not used				
16	D7	I/O	DATA	Normal	DATA	56	E-RE	I	Earth	-	Recall
17	AD1	O	ADDRESS	-	ADRESS	57	EX-HOOK	I	EX-HOOK	-	Normal
18	AD2	O	ADDRESS	-	ADRESS	58	RLY	O	ON	-	OFF
19	ACK	I	Processing	-	Communication OK	59	BELL	I	Not BELL	-	BELL
20	R/W	O	Read	-	Write	60	TSTMD2	I	Test Mode	-	Usual
21	{ Not Used					61	TSTMD1	I	Test Mode	-	Usual
22	DSP RESET	O	-	-	DSP RESET	62	T/P	I	PULSE	-	TONE
23	COM	O	Not communicated	-	Communication	63	RNGHI	I	LOW	-	OFF
24	CS (E-ROM)	O	Active	-	Stand by	64	RNGOFF	I	-	-	HIGH
25	DO (E-ROM)	I	DATA	-	DATA	65	REMOTE	I	DATA	-	DATA
26	BEEP CLOCK	O	Active	-	Normal	66	SHUNT	O	OFF	-	ON
27	BEEPCTL	O	-	High	Low	67	EARTH	O	ON	-	OFF
28	BEEPCTL	O	-	High	Low	68	{ Not Used				
29	KEY IN	I	Disable	-	Enable	69					
30	KEY IN	I	Disable	-	Enable	70					
31	KEY IN	I	Disable	-	Enable	71					
32	KEY IN	I	Disable	-	Enable	72					
33	{ Not Used					73					
34						74					
35						75					
36						76					
37	ACDOWN	I	AC	-	Non-AC	77	INUSE LED	O	-	OFF	ON
38	VASS	-	-	-	GND	78	MUTE/PROG LED	O	-	OFF	ON
39	VAREF	-	VDD	-	-	79	POWER LED	O	-	OFF	ON
40	VDD	-	VDD	-	-	80	Not Used				

DISASSEMBLY INSTRUCTIONS

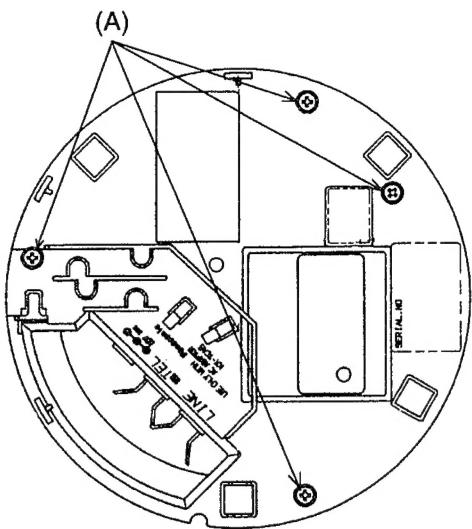


Fig. 11

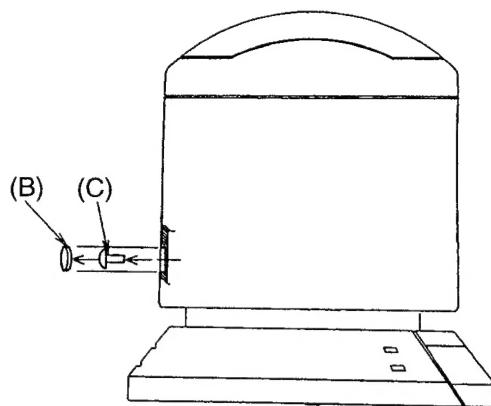


Fig. 12

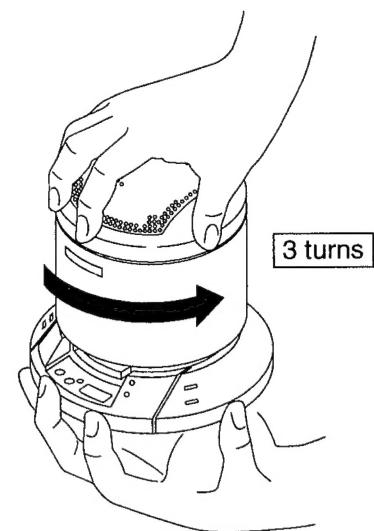


Fig. 13

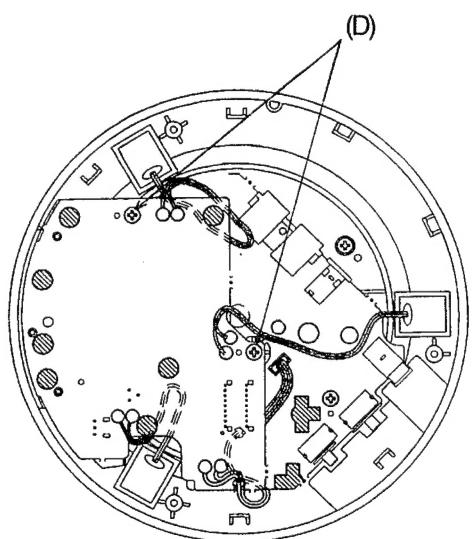


Fig. 14

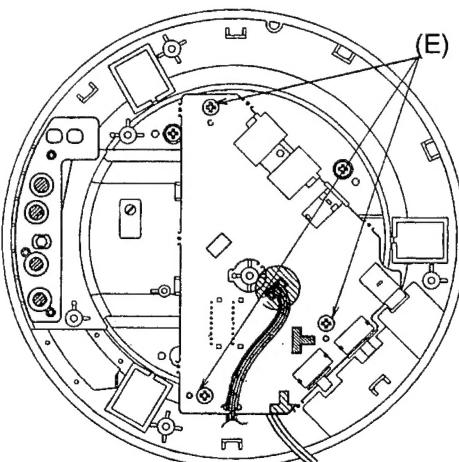


Fig. 15

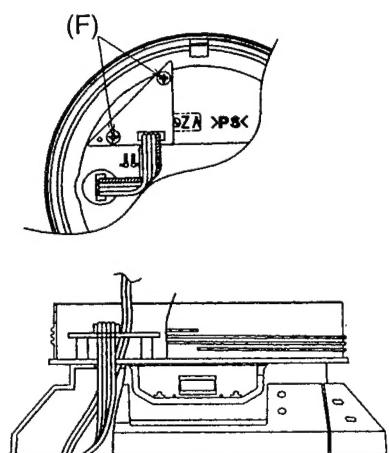


Fig. 16

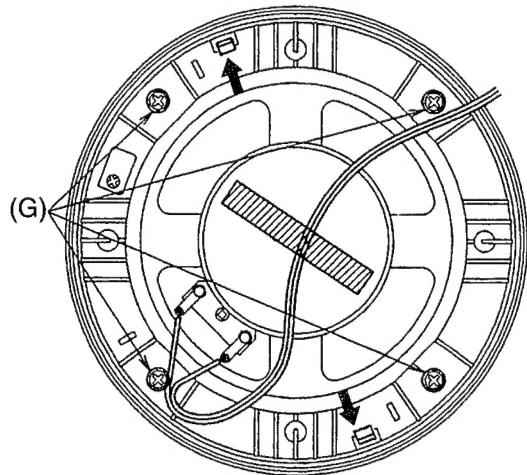


Fig. 17

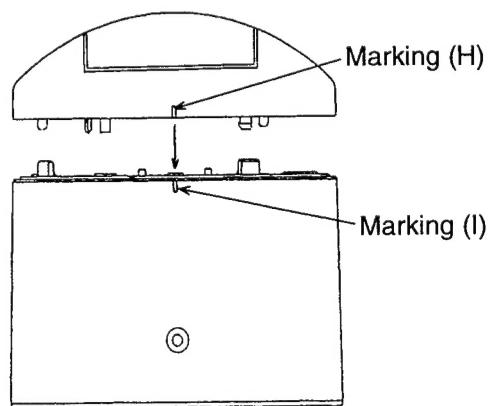


Fig. 18

Ref No.	Procedure	Shown in Fig. -	To Remove	Remove
1	1	11	Lower Cabinet	Screws (3×12) (A)×4
2				Remove the Screw Cover (B)
3	1~4	12	Speaker Box	Screw (3×10) (C)×1
4		13		3 turns the Speaker Box
5	1~5	14	Intercom P.C.Board	Screws (3×8) (D)×2
6	1~6	15	Main P.C.Board	Screws (3×8) (E)×3
7	1~7	16	Small P.C.Board	Screws (3×8) (F)×2
8	1~8	17	Speaker	Screws (3×12) (G)×4
9	1~9		Speaker Cover	Pull the 2 hooks direction of arrows

Note: When assembling the speaker cover, set the marking (H) and (I) as shown in Fig.18.

HOW TO WRITE EEPROM

**The following steps must be taken when replacing EEPROM (IC1).
The unit will not operate unless these operations are performed.**

- (1) Replace defective EEPROM with new EEPROM.
- (2) Connect AC adaptor to the unit.....The POWER LED flashes (500 msec. cycle).
- (3) Press the [7] → [6] → [*] buttons in this sequence on the KX-TS700-B remote controller (these 3 digits must be input in less than 4 seconds).....All LEDs light (500 msec.).
- (4) Press the FLASH button on the KX-TS700-B remote controller.....Beep 500 msec., and POWER LED lights.
- (5) Press buttons as shown below.
 [*], [3], [3], [5], [5], [1], [4], [6], [3], MUTE, MUTE, MUTE, [1], [2], [4], [5], [1], REDIAL, [7],
 [3], MUTE, MUTE, MUTE, MUTE, [8], [5], [7], [7], MUTE, [6].....INUSE LED and MUTE LED light.
- (6) Repeat steps (4) and (5).....When repeated for the second time: all LEDs light, beep 500 msec.
- (7) Then data has been written in the EEPROM.

If all the LEDs fail to light upon completion of step (6) or if the wrong action is taken, repeat steps (4) and (5). If they fail to light even when steps (4) and (5) are repeated for the second time, it means that no data has been written in the EEPROM. Check the soldering around the components, re-install the EEPROM, and follow the procedure starting at step (1).

Note: When starting from procedure step (1), be sure to perform the operation in step (3) in less than 4 seconds after the power is turned back on. Otherwise the unit does not enter the write mode in the EEPROM.

HOW TO REPAIR THE MICROPHONE

Symptom: When using speakerphone, the unit does not transmit voice or transmit level is low.

Remedy: Check the microphones (MIC1 ~ MIC3) according to the following procedure, and replace it with new microphone.

1. Connect the AC voltmeter TP21 and GND, and remove all of lead wire for MIC1~MIC3.
2. Then connect AC adaptor, and set the unit to speakerphone mode.
3. Each MIC must be checked individualy.
 - 1) Check MIC1.
 - Connect the lead wire for MIC1. Then speak into MIC1 and confirm the response of AC voltmeter.
 - Remove the lead wire for MIC1.
 - 2) Check MIC2.
 - Connect the lead wire for MIC2. Then speak into MIC2 and confirm the response of AC voltmeter.
 - Remove the lead wire for MIC2.
 - 3) Check MIC3.
 - Connect the lead wire for MIC3. Then speak into MIC3 and confirm the response of AC voltmeter.
 - Remove the lead wire for MIC3.
- 4) Compare the response of AC voltmeter between MIC1, MIC2 and MIC3.
No response or low output means that microphone is defective.
4. When replacing microphone (MIC1) you must replace VR1 with a fixed resistor R18 (Part No. ERJ3GEYJ391).
When replacing microphone (MIC2) you must replace VR2 with a fixed resistor R16 (Part No. ERJ3GEYJ391).
When replacing microphone (MIC3) you must replace VR3 with a fixed resistor R17 (Part No. ERJ3GEYJ391).
When you order microphone (PQWMTS700B) please order resistor (ERJ3GEYJ391) also.
※ VR1, VR2 and VR3 cannot be adjusted by service technician.

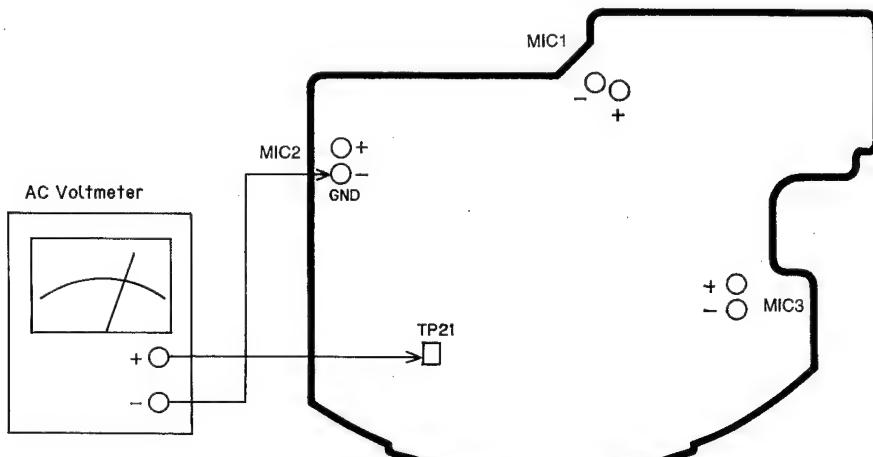


Fig.19

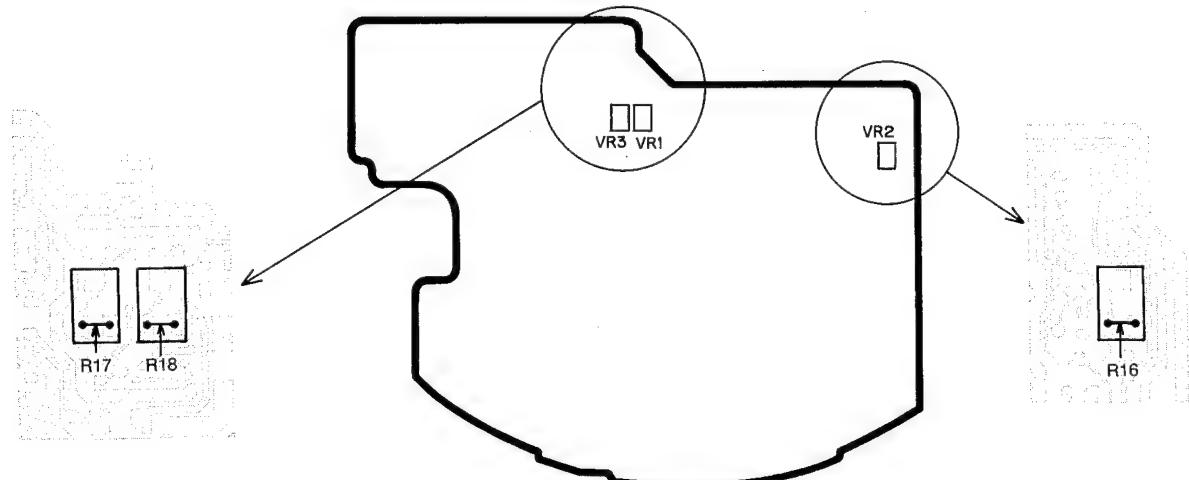
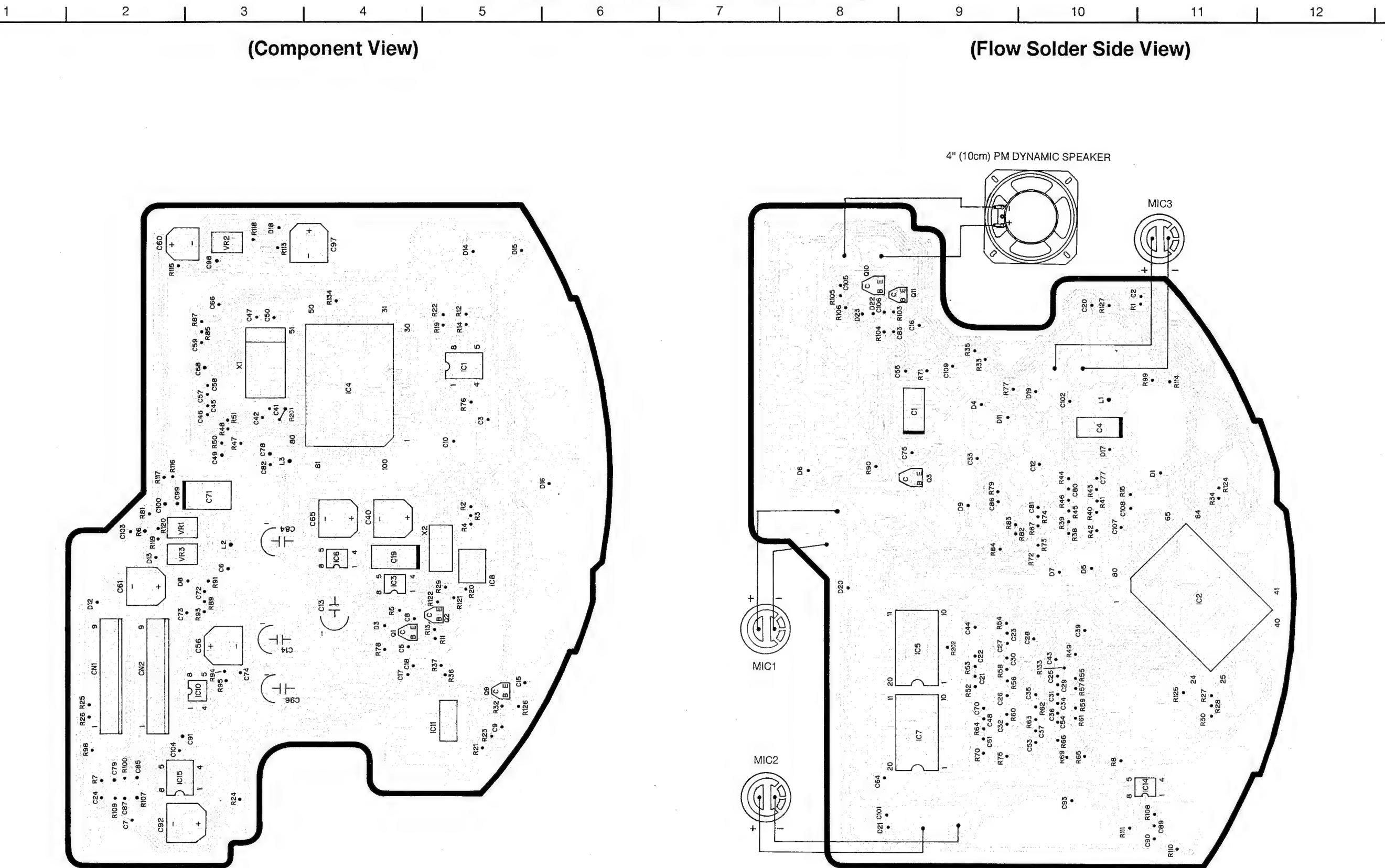


Fig.20

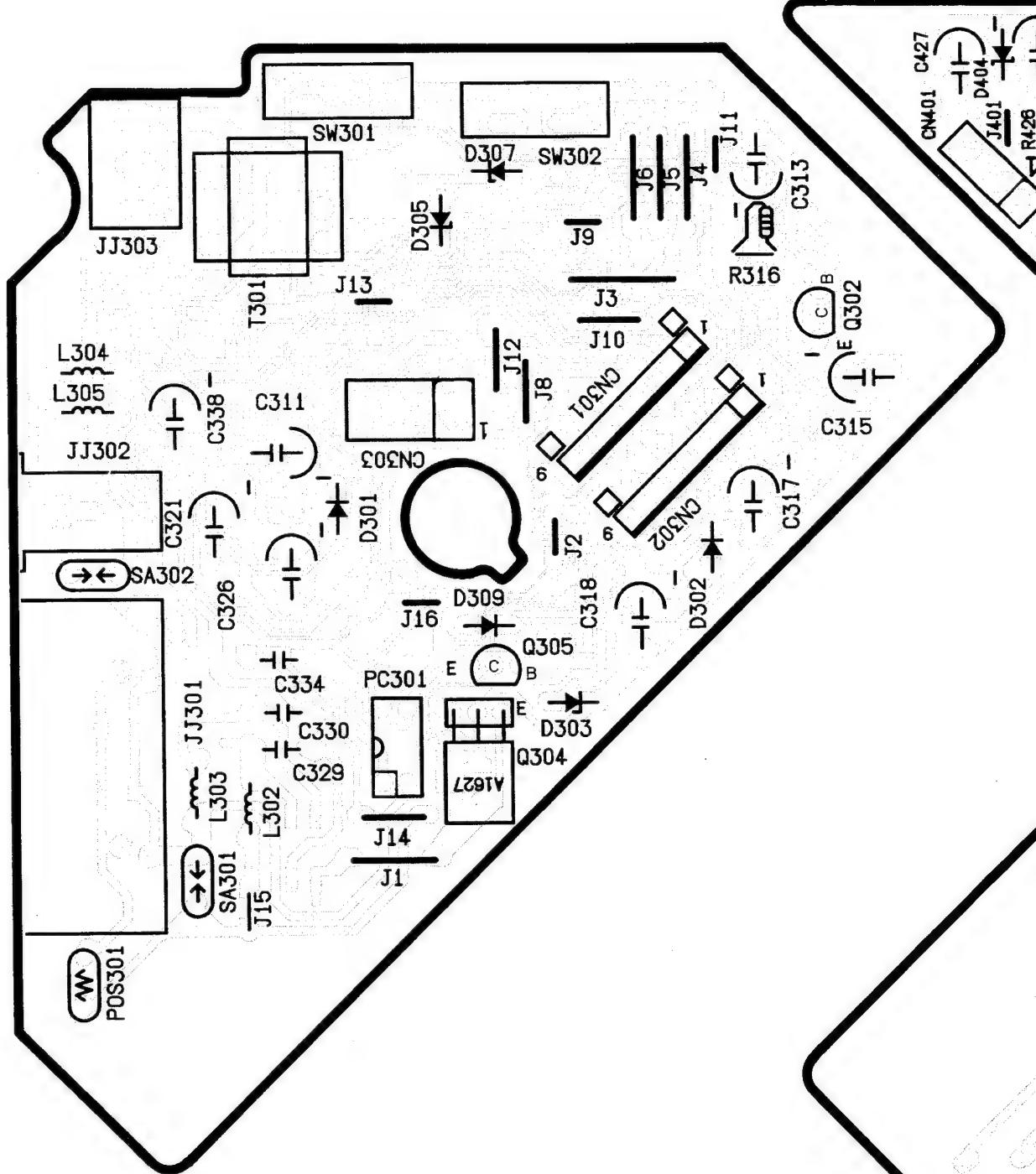
CIRCUIT BOARD [MAIN P.C.BOARD]



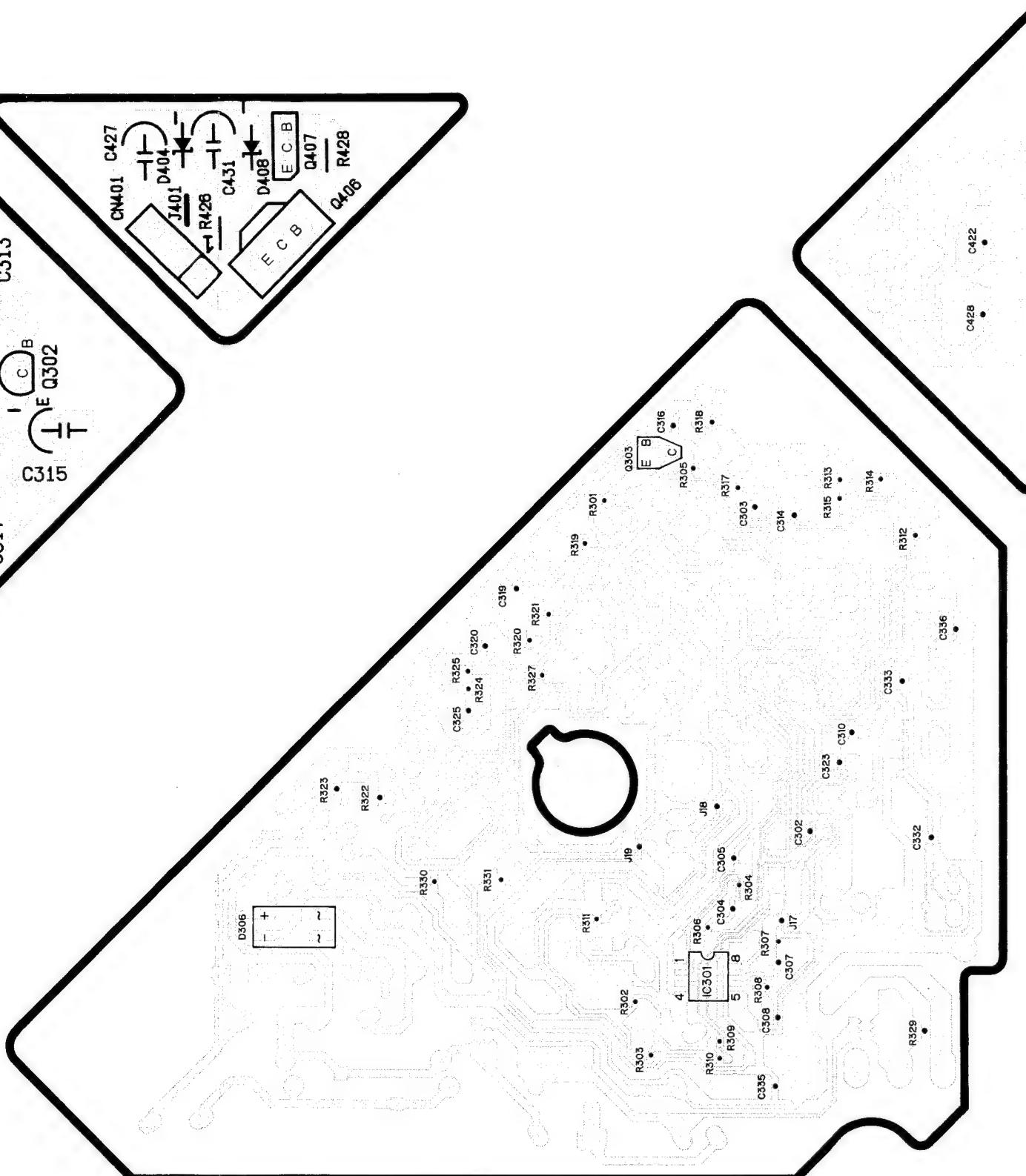
CIRCUIT BOARD [INTERFACE P.C.BOARD]

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12

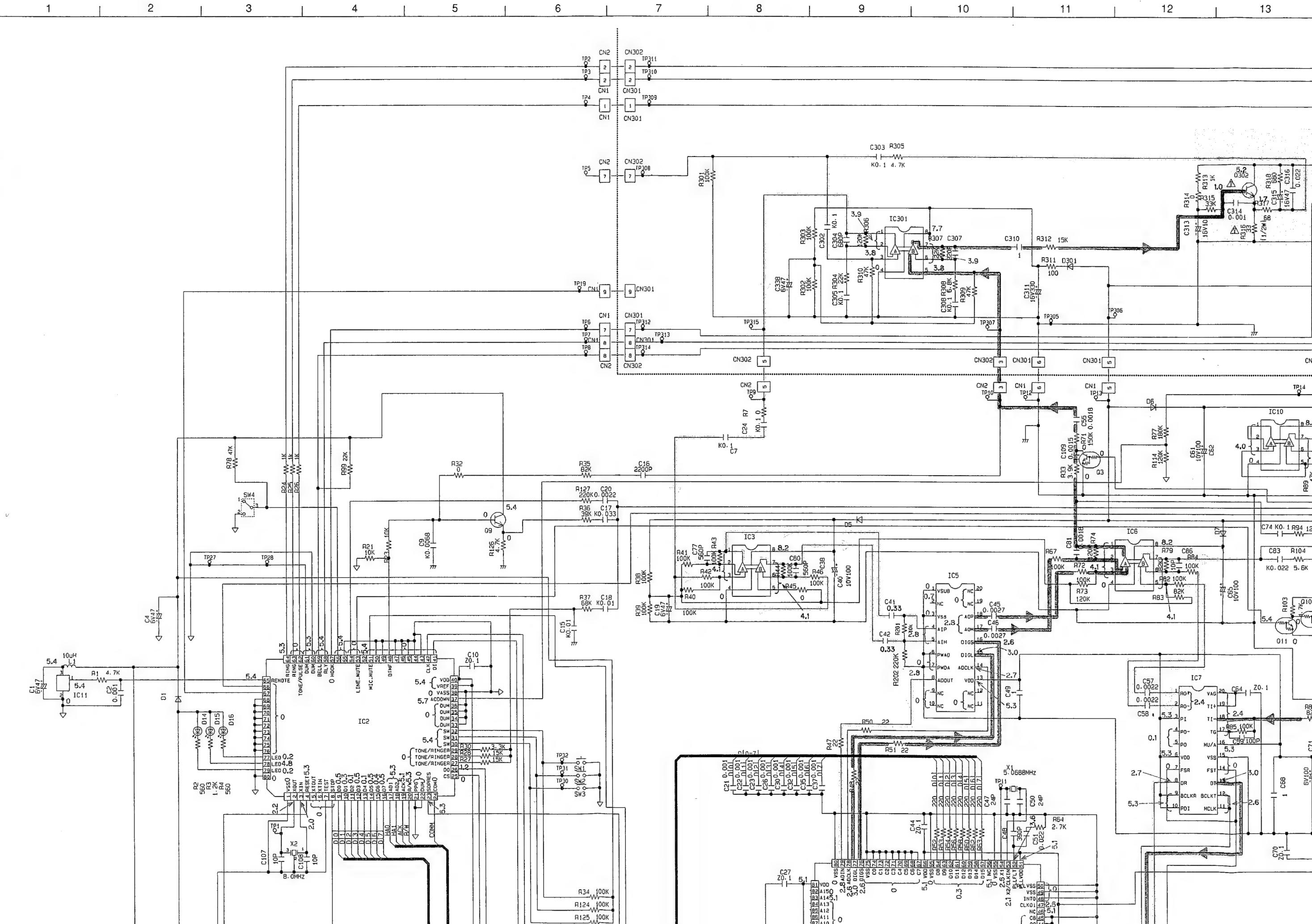
(Component View)

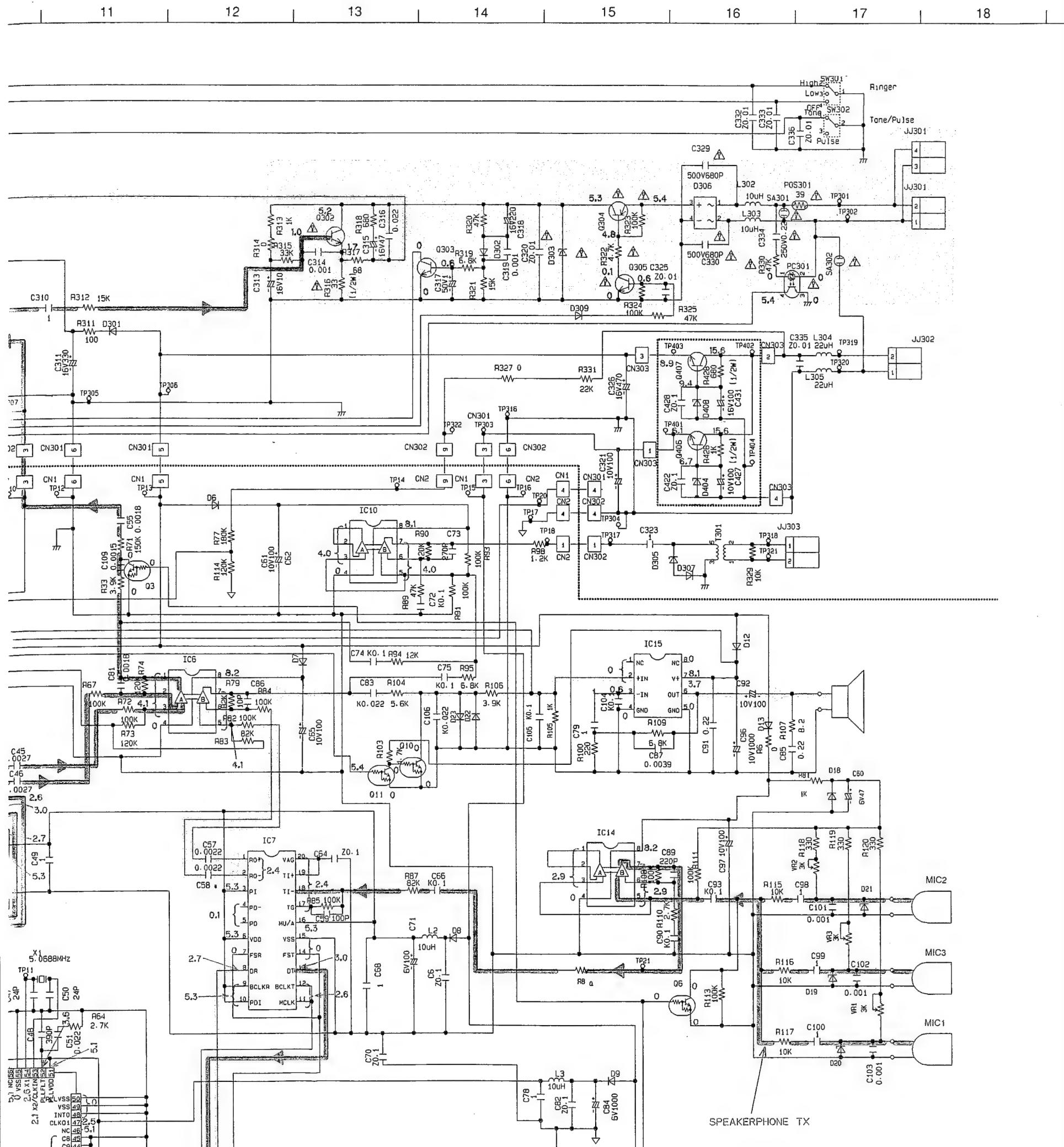


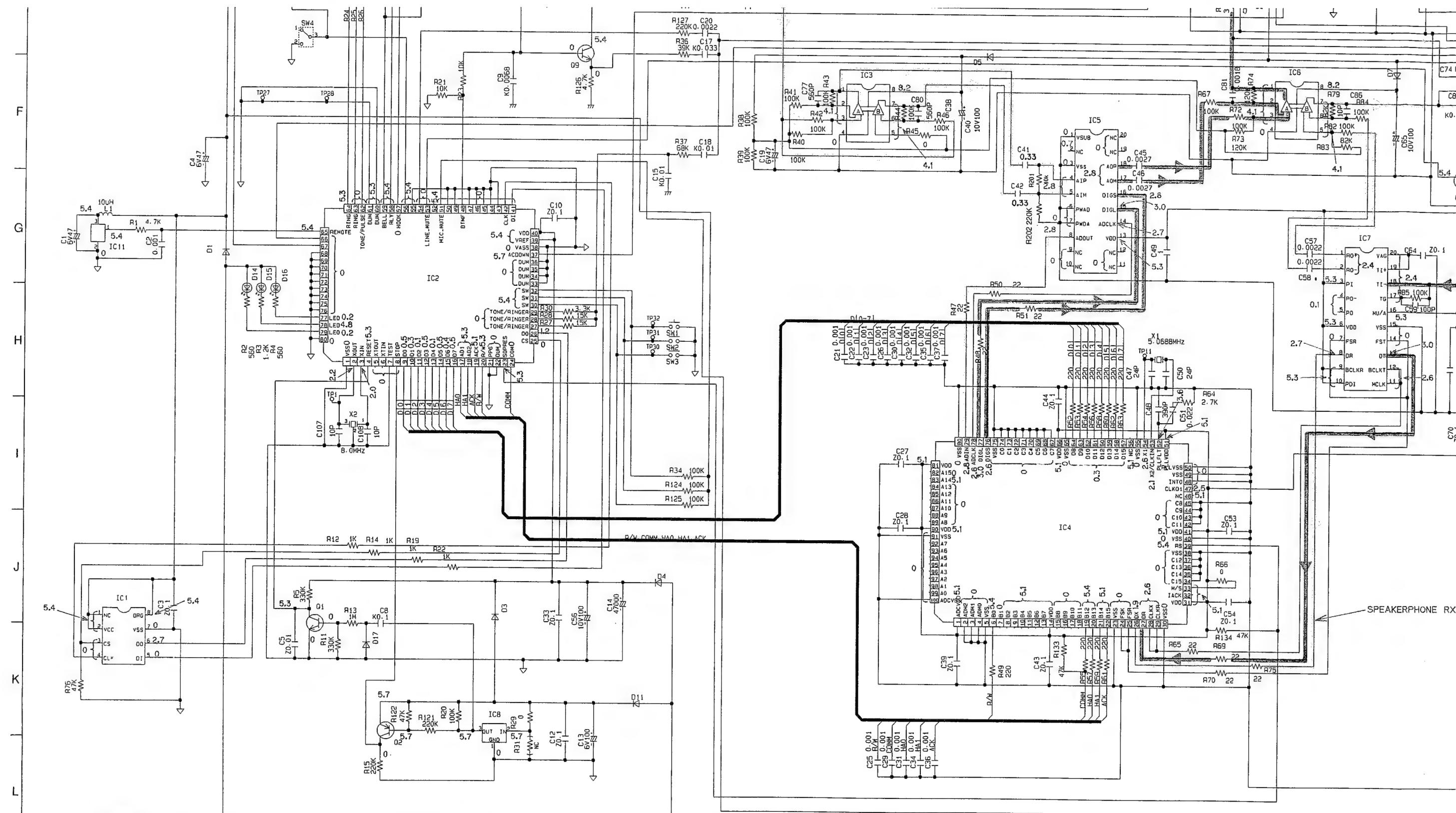
(Flow Solder Side View)



SCHEMATIC DIAGRAM







Notes:

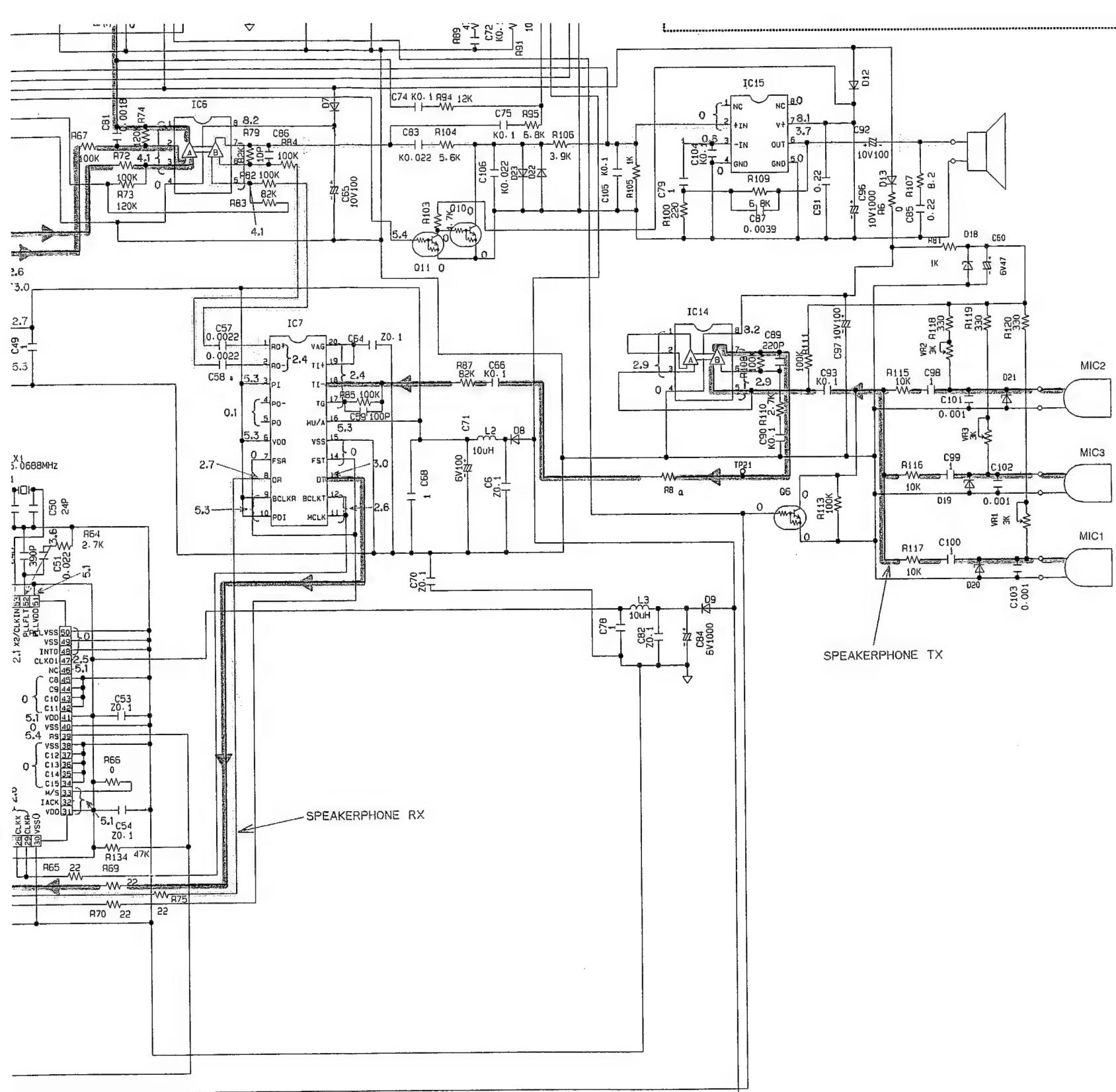
1. SW301: Ringer Selector Switch
 2. SW302: Dialing Mode Selector Switch
 3. DC voltage measurements
are taken with voltmeter from
the negative voltage line.

Important Safety Notice

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.

When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

This schematic diagram may be modified at any time with the development of new technology.



BLOCK DIAGRAM

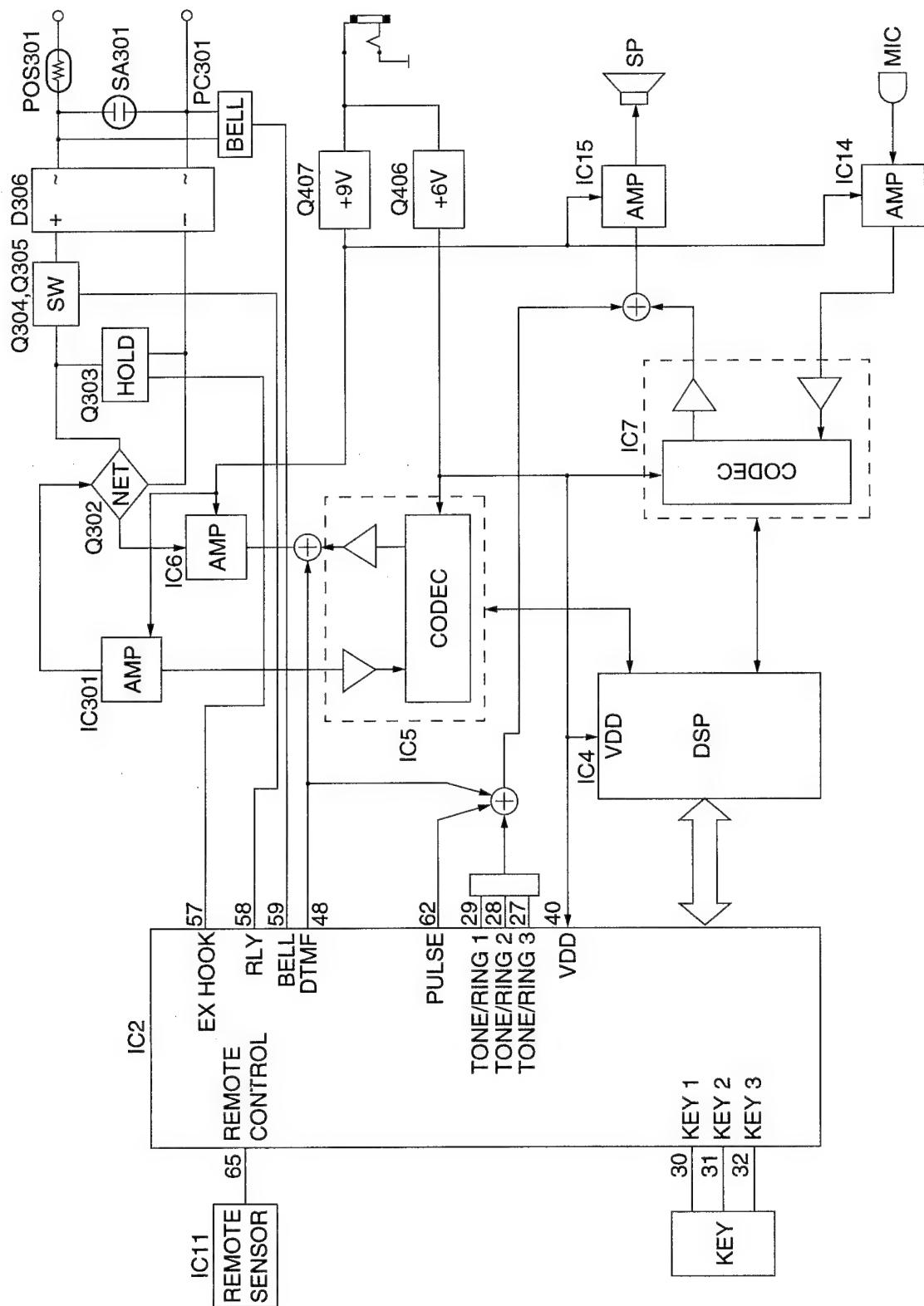


Fig.21

CIRCUIT OPERATION

■ TELEPHONE LINE INTERFACE

Circuit Operation:

- OFF HOOK

In the idle mode, Q304 is open to cut the DC loop current and decrease the ring load. When ring voltage appears at the Tip (T) and Ring (R) leads (When the telephone rings), the AC ring voltage is transferred as follows:

T → POS301 → C334 → R330 → PC301 → IC2 (59)

When user turns on speaker phone, CPU turns on Q304 thus providing an off-hook condition (active DC current flow through the circuit) and the following signal flow is for the voice signal.

T → POS301 → L302 → D306 → Q304 → Q302 → R316 → D306 → L303 → R

- ON HOOK

Q304 is open cut the DC loop current and to cut the voice signal. The unit is consequently in an on-hook condition.

- SPECIFICATIONS

In the on-hook state (idle), the current flows between the telephone line and the unit is as follows:

T → C334 → R330 → PC301 → R

The DC component is blocked by C334: thereby providing an on-hook condition.

The AC interface impedance is over 47 kΩ; thus, satisfying the telephone company requirements.

Circuit Diagram

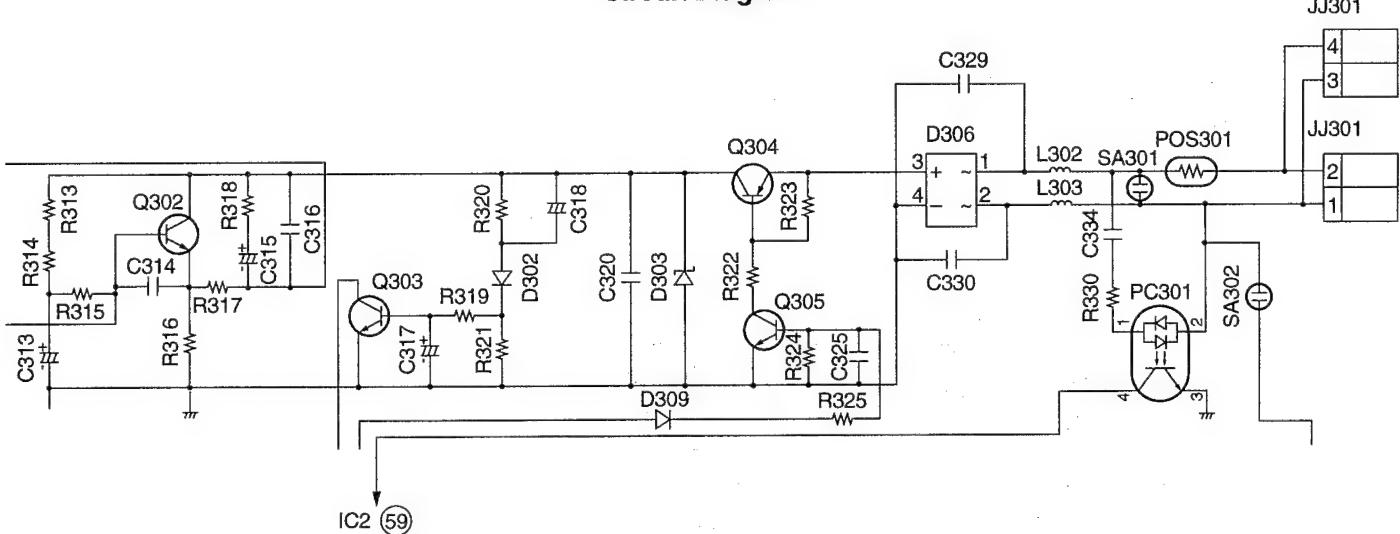


Fig. 22

■ REMOTE CONTROL CIRCUIT

Function:

Remote control signal received by IC11 is converted pulse signal and detected by IC2.

Circuit Operation:

When IR signal is input to IC11, Pin 1 of IC11 output LOW signal and when IR signal is not input to IC11, Pin 1 of IC11 output HIGH signal.

Output signal of Pin 1 of IC11 flows as follow.

Pin 1 of IC11 → R1 → Pin 65 of IC2

Circuit Diagram

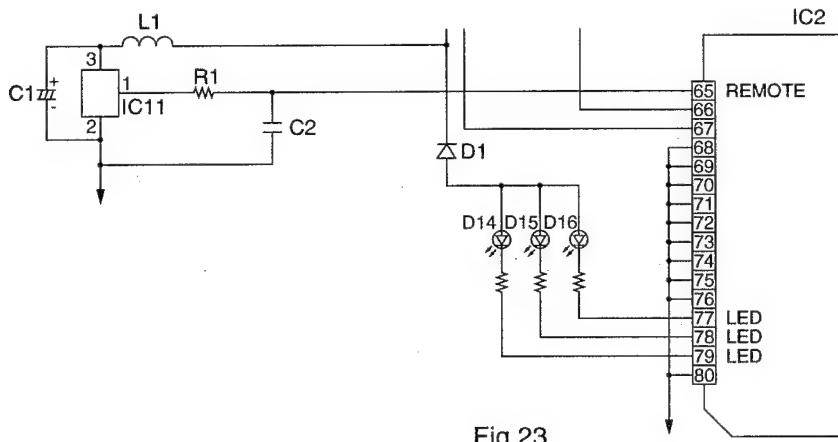


Fig.23

■ RECORDING CIRCUIT

Function:

The recording circuit is an output circuit which is used to record receiving/sending signal.

Circuit Operation:

When SP phone-ON, receiving signal from Pin 7 of IC6 and sending signal from Pin 1 of IC6 are outputted from JJ303. The signal flow as follows.

Pin 7 of IC6 → C75 → R95 → Pin 5 of IC10 → Pin 7 of IC10 → R98 → Pin 2 of CN 2 (TP18) → C323 → T301 → JJ303

Circuit Diagram

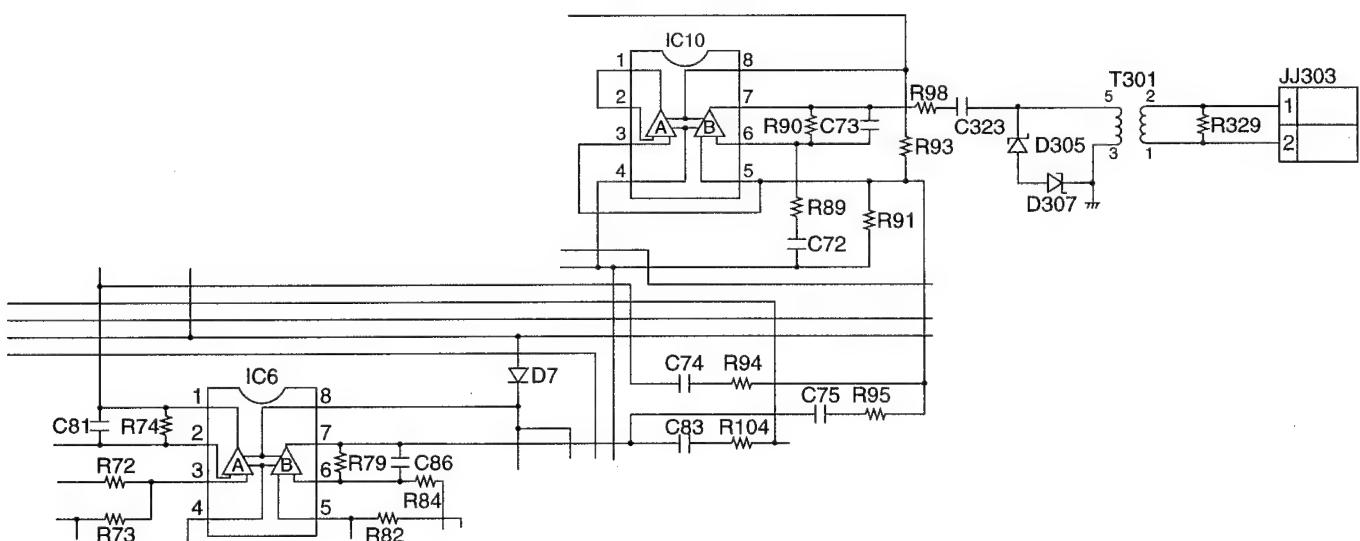


Fig.24

KX-TS700-B

■ SP-PHONE RX CIRCUIT

Circuit Operation:

T → POS301 → L302 → Q306 → Q304 → C316 → R305 → C303 → C302 → Pin 3 of IC301 → Pin 1 of IC301 → Pin 5 of CN 2 (TP9)
→ R7 → C24 → C7 → R42 → Pin 3 of IC3 → Pin 1 of IC3 → C41 → Pin 4 of IC5 ↑ Pin 8 of IC5 →
→ R46 → Pin 6 of IC3 → Pin 7 of IC3 → C42 → Pin 5 of IC5
→ R47 → Pin 79 of IC4 → Pin 26 of IC4 → R75 → Pin 8 of IC7 →
→ Pin 1 of IC7 → C57 → R82 → Pin 5 of IC6 ↑
→ Pin 2 of IC7 → C58 → R84 → Pin 6 of IC6
→ Pin 7 of IC6 → C83 → R104 → R106 → Pin 2 of IC15 → Pin 6 of IC15 → C92 → Speaker.

■ SP-PHONE TX CIRCUIT

Circuit Operation:

MIC1 → C100 → R117
MIC2 → C99 → R116 → C93 → Pin 5 of IC14 → Pin 7 of IC14 → R8 → C66 → R87 → Pin 18 of IC7 →
MIC3 → C98 → R115
Pin 13 of IC7 → R69 → Pin 27 of IC4 →
Pin 77 of IC4 → R48 → Pin 15 of IC5 ↑ Pin 18 of IC5 → C45 → R72 → Pin 3 of IC6 ↑ Pin 1 of IC6 →
Pin 76 of IC4 → R51 → Pin 16 of IC5 ↑ Pin 17 of IC5 → C46 → R67 → Pin 2 of IC6
R33 → C109 → R71 → C55 → Pin 3 of CN 2 (TP10) → Pin 5 of IC301
Pin 7 of IC301 → C310 → R312 → Q302 → Q304 → D306 → L302 → POS301 → T.

Circuit Diagram

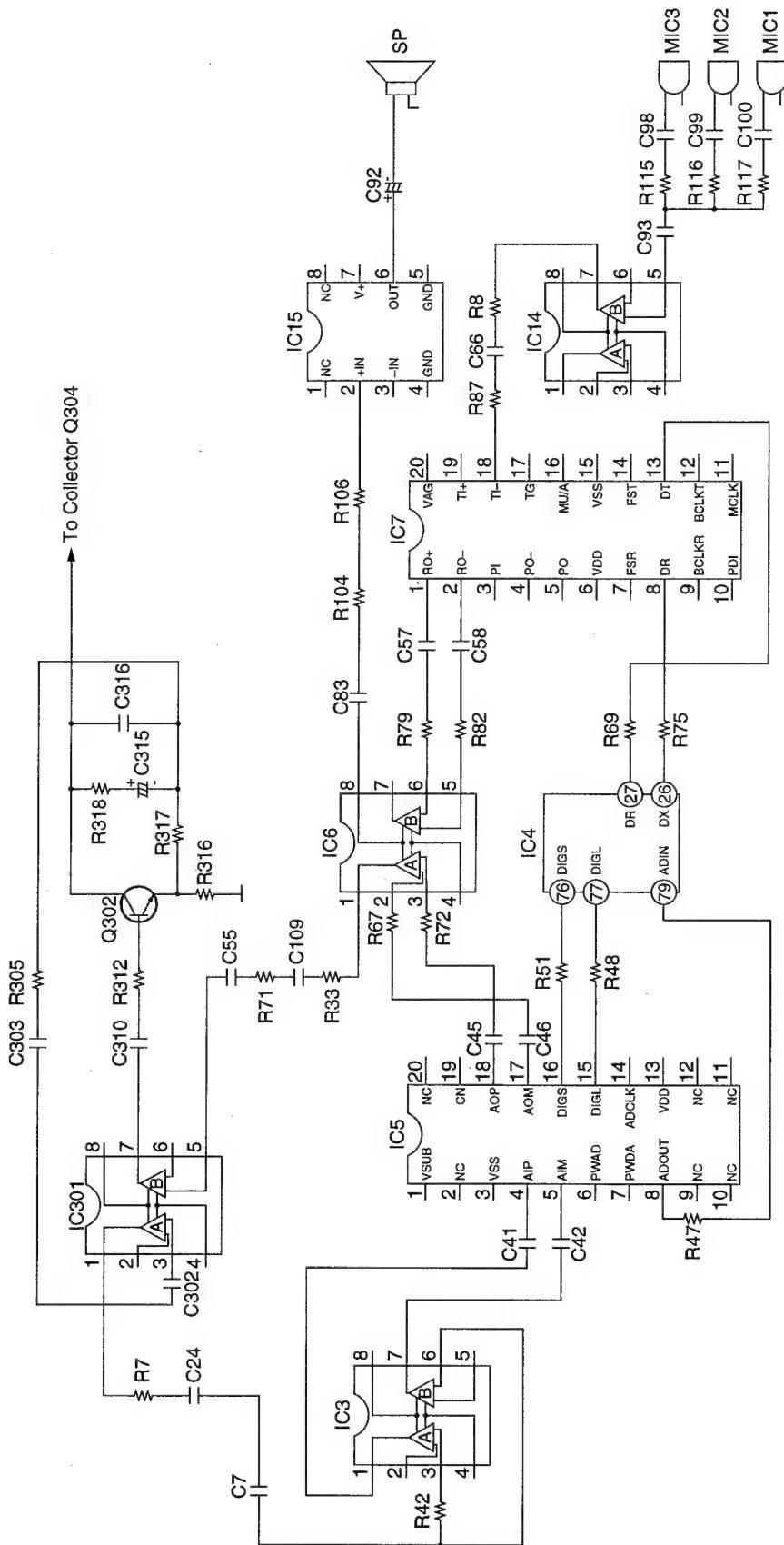


Fig.25

KX-TS700-B

BELL DETECTION CIRCUIT AND BELL GENERATION CIRCUIT

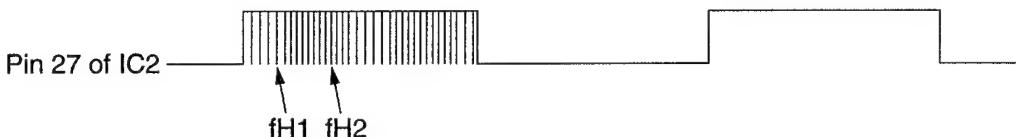
Circuit Operation:

When the bell signal is received from the line, it passes through C334 and R330, turning PC301 ON. As a result, Pin 57 of IC2 becomes Low level. In this way, a ringer tone which corresponds to each line is generated from Pins 27, 28, 29 of IC2. This tone passes through the following path: the generated signal causing the tone ringer to produce a ringing tone.

	fH1	fH2
Pin 27 of IC2	500Hz	750Hz

Pin 27 of IC2 → R27 → R37 → C18 → Pin 2 of IC15 → Pin 6 of IC15 → C92 → Speaker.
 Pin 28 of IC2 → R28 → C92 → Speaker.
 Pin 29 of IC2 → R29 → C92 → Speaker.

The following shows the waveform of the tone ringing IC output:



Circuit Diagram

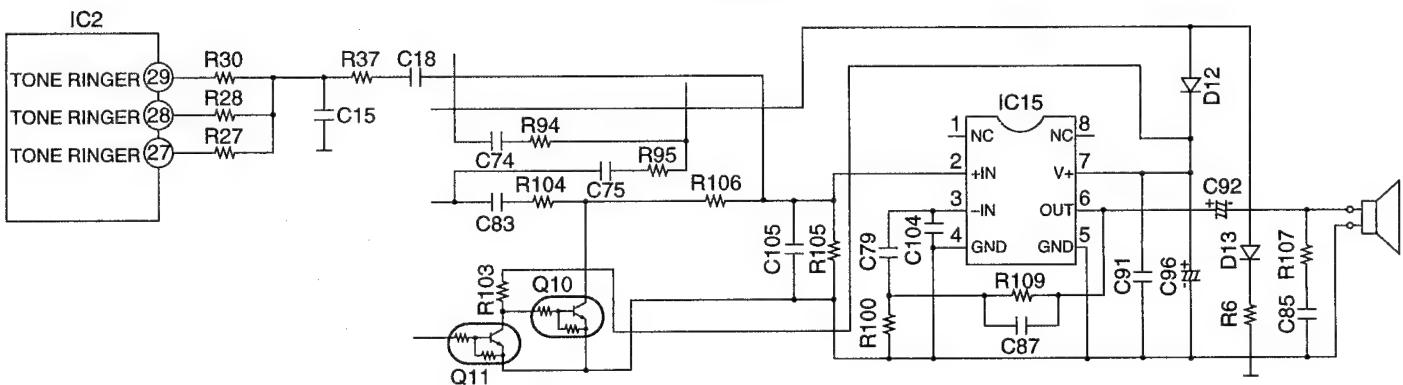


Fig.26

■ TONE DIAL CIRCUIT

Function:

The tone dialing circuit consists of a DTMF (Dual Tone Multi Frequency) signal generator (outputted from) for tone dialing, and also a circuit for outputting the signal to line.

The DTMF circuit identifies inputs from the 12 keys (1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *, #) by means of a total of seven frequencies, that is four low frequencies (Low group) and three high frequencies (High group).

Circuit Operation:

When a dial key is pressed, a DTMF signal outputted from Pin 48 of IC2 as an analog synthetic wave.

The signal flow to the line is as follows.

Pin 48 of IC2 → R23 → R32 → R35 → C16 → Pin 5 of IC301 → Pin 7 of IC301 → C310 → R312 → base of Q302 → collector of Q302 → Q304 → D306 → L302 → POS301 → Telephone Line.

The DTMF signal is sent to the line via the following path.

The signal combination and frequency corresponding to each dial key is shown below.

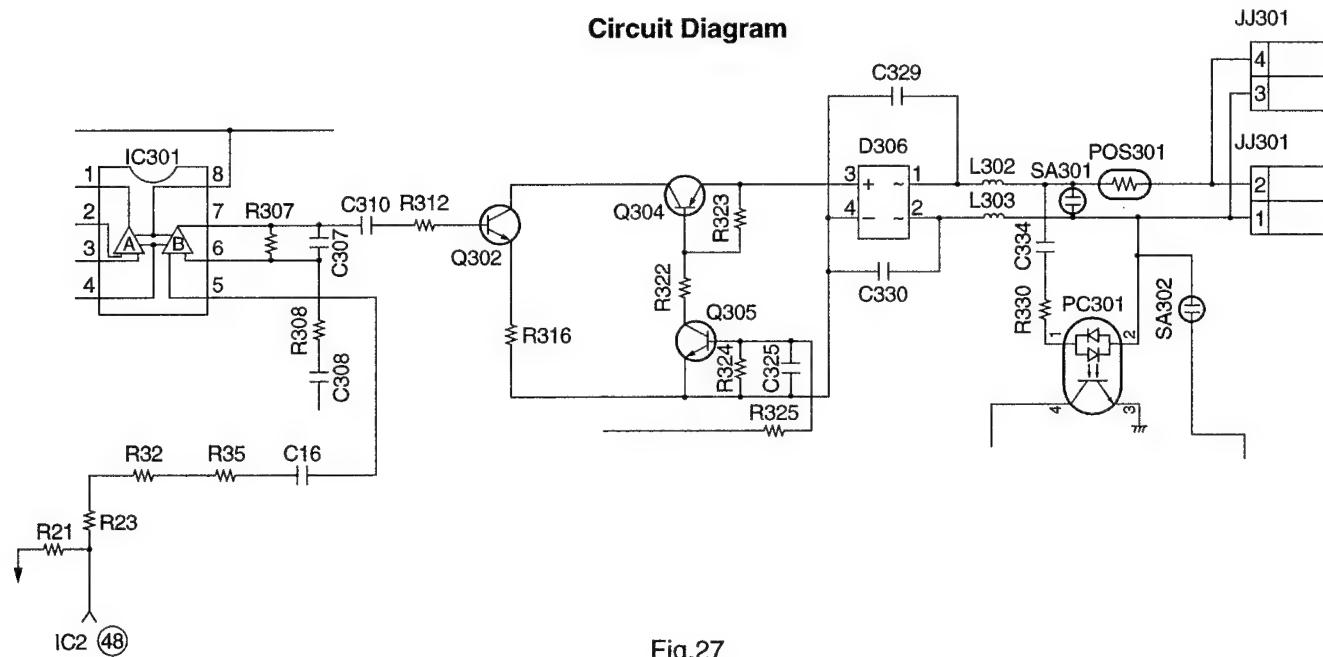


Fig.27

Tone Frequencies

High Group Low Group	H1	H2	H3
L1	1	2	3
L2	4	5	6
L3	7	8	9
L4	*	0	#

Low Group	Frequencies	High Group	Frequencies
L1	697Hz±1.5%	H1	1209Hz±1.5%
L2	770Hz±1.5%	H2	1336Hz±1.5%
L3	852Hz±1.5%	H3	1477Hz±1.5%
L4	941Hz±1.5%		

■ INITIALIZING CIRCUIT

Function:

This circuit is used for to initialize the microcomputer when it incorporates an AC adaptor.

Circuit Operation:

When the AC Adaptor is inserted into the unit, then the voltage is shifted by D4 and power is supplied to the CPU. The set can operate beyond point (A) in the circuit voltage diagram.

Circuit Diagram

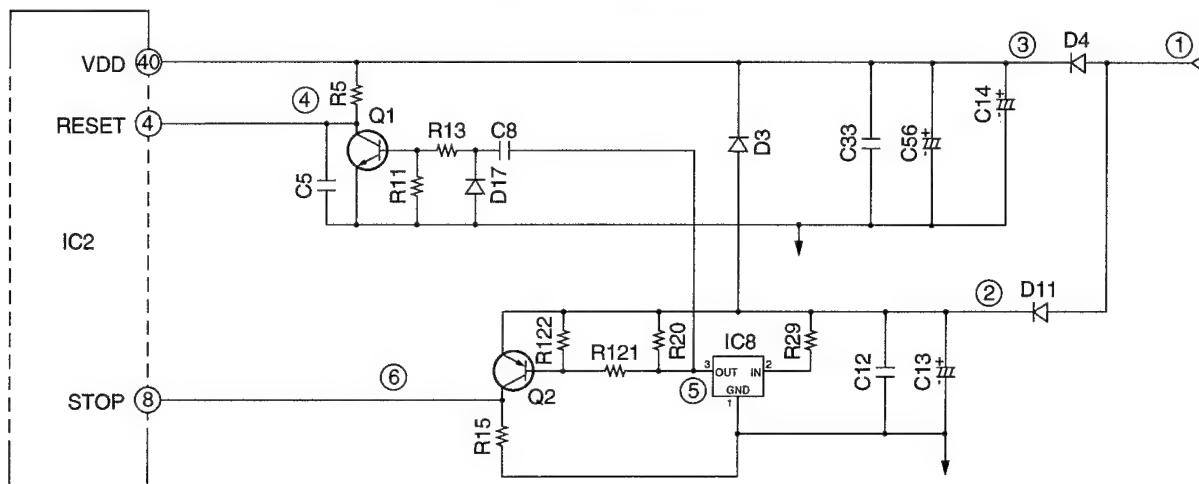


Fig. 28

Circuit Voltage

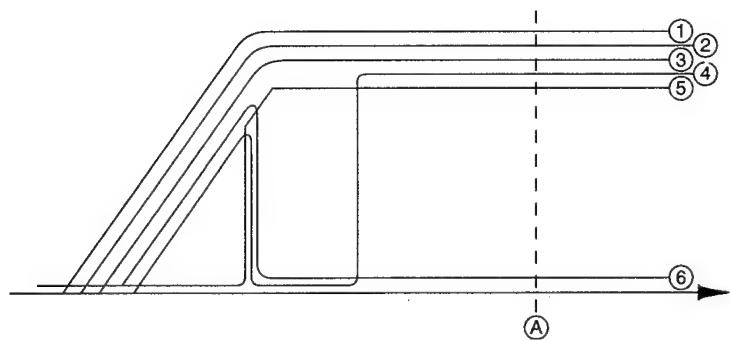


Fig. 29

■ DSP (Digital Signal Processing) CIRCUIT

General Description:

(IC4, IC5, IC7) is a digital speakerphone/signal processing system that implements all the functions of speech compression, required in a digital speakerphone.

The DSP system is fully controlled by a host processor (IC2), via an 8 bit interface. The host processor provides activation and control of all speakerphone functions.

The DSP system comprises of following.

- a Digital Signal Processor which includes firmware implemented functions.
- a Codec (IC5, IC7), which is used as the analog I/O interface.

Block Diagram

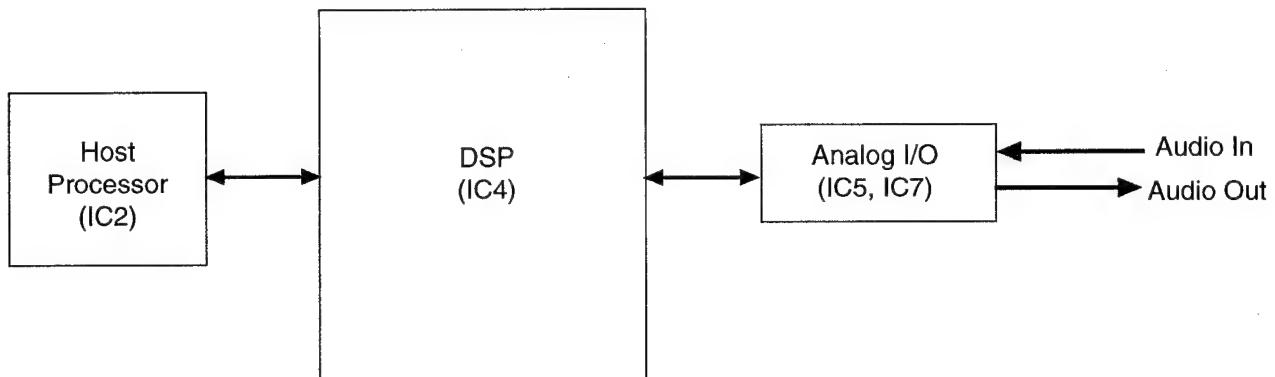


Fig. 30

AUTO DISCONNECT CIRCUIT

Function:

This circuit is used to detect the fact that another telephone connected to the same line is OFF-HOOK while the unit is in a receiving status.

Circuit Operation:

$T \rightarrow POSS301 \rightarrow L302 \rightarrow D306 \rightarrow Q304 \rightarrow C318 \rightarrow D302 \rightarrow R319 \rightarrow Q303$. During this interval C317 charges and the base of Q303 becomes High, causing Q303 to go ON.

If a parallel-connected telephone is put into an OFF HOOK status, charge ceases to flow to C318, and the base of Q303 becomes Low, causing Q305 to go OFF.

However, the system is designed so that if the voltage fluctuation is small, the charging and discharging of C317 has no effect on the system.

When a line is connected, Q303 goes ON, causing Pin 57 of IC2 to go low. When the line is disconnected, Q303 goes off, causing Pin 57 of IC2 to go high.

Circuit Diagram

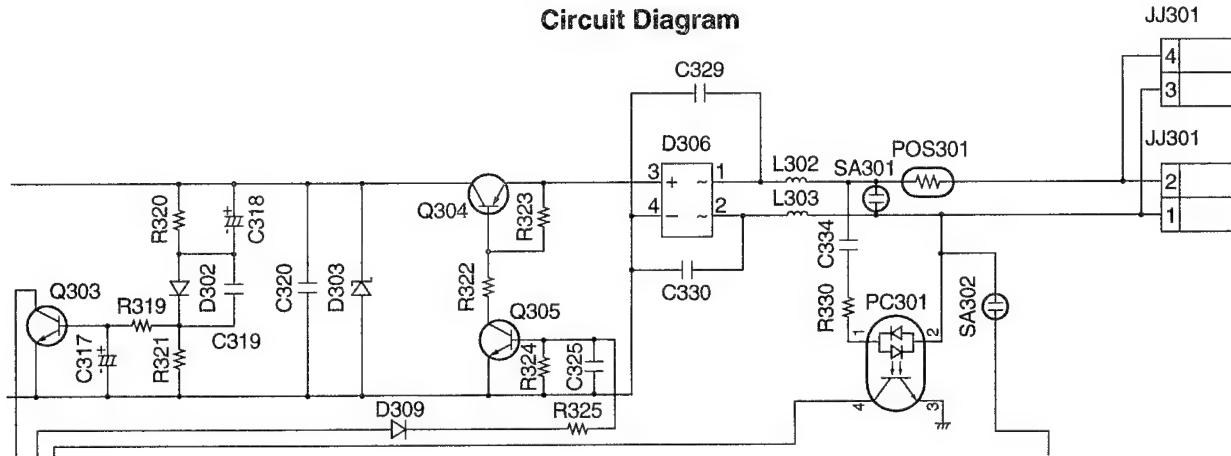


Fig. 31

■ POWER SUPPLY CIRCUIT

Function:

Power from the AC adaptor passes through a 2-stage regulating block consisting of Q407 and Q406 and provides system voltages of 6.2 V.

Circuit Operation:

Q407 is a regulated power supply. The voltage at point A is regulated to 9 V by the zener voltage of D408 → power of IC301, IC3, IC6, IC15. Q406 is a regulated power supply.

The voltage at point ⑧ is regulated to 6.2 V by the zener voltage of D404 → power of IC5, IC7, IC2, IC4, IC11, IC1.

Circuit Diagram

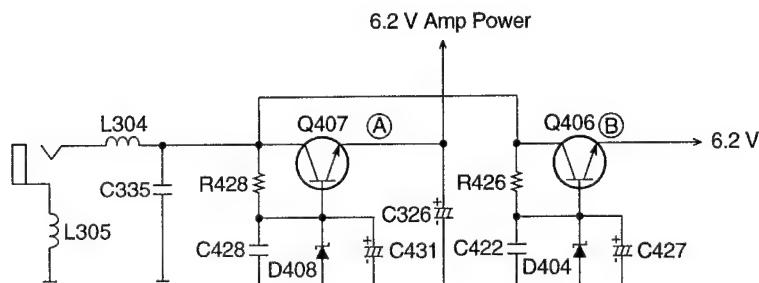


Fig. 32

TROUBLESHOOTING GUIDE

SERVICE HINTS

SYMPTOM	CURE
Can't dial.	Check IC2, Q305, Q304, Q302, X2, C107 and C108.
Can't hear the voice from SP.	Check IC301, IC3, IC5, IC4, IC7, IC6 and IC15.
No voice transmit.	Check IC14, IC7, IC4, IC5, IC3, IC301, Q302, Q304, MIC1, MIC2 and MIC3.
Can't tone dial.	Check IC2, IC301, Q302 and Q304.
Can't pulse dial.	Check IC2, Q305 and Q304.
No rings.	Check IC2, PC301 and IC15.
Can't hold.	Check Q303 and IC2.
Can't change the volume speakerphone.	Check IC2, IC4.
POWER LED doesn't light.	Check Q406 and IC2.

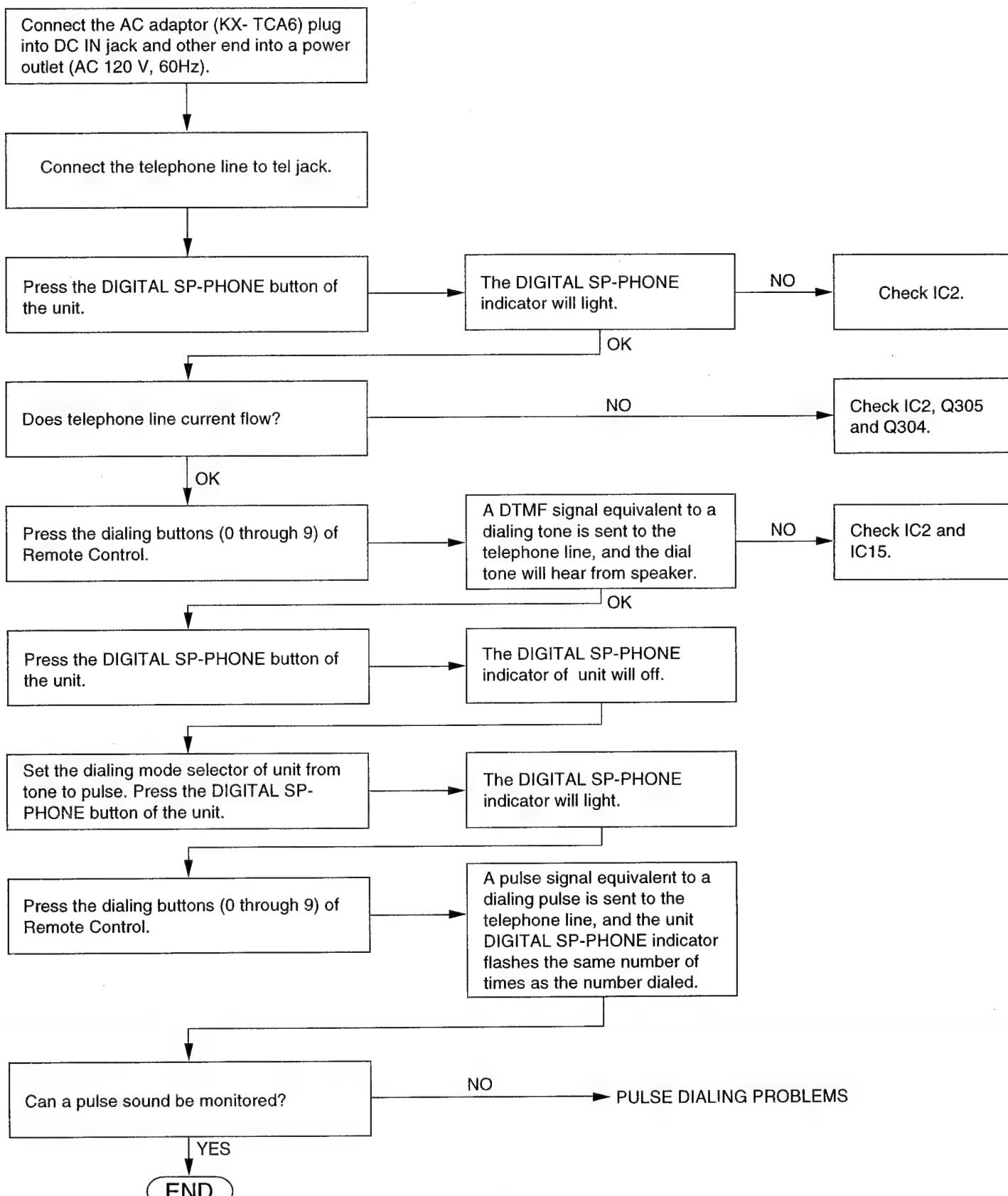
KX-TS700-B

Unit Condition:

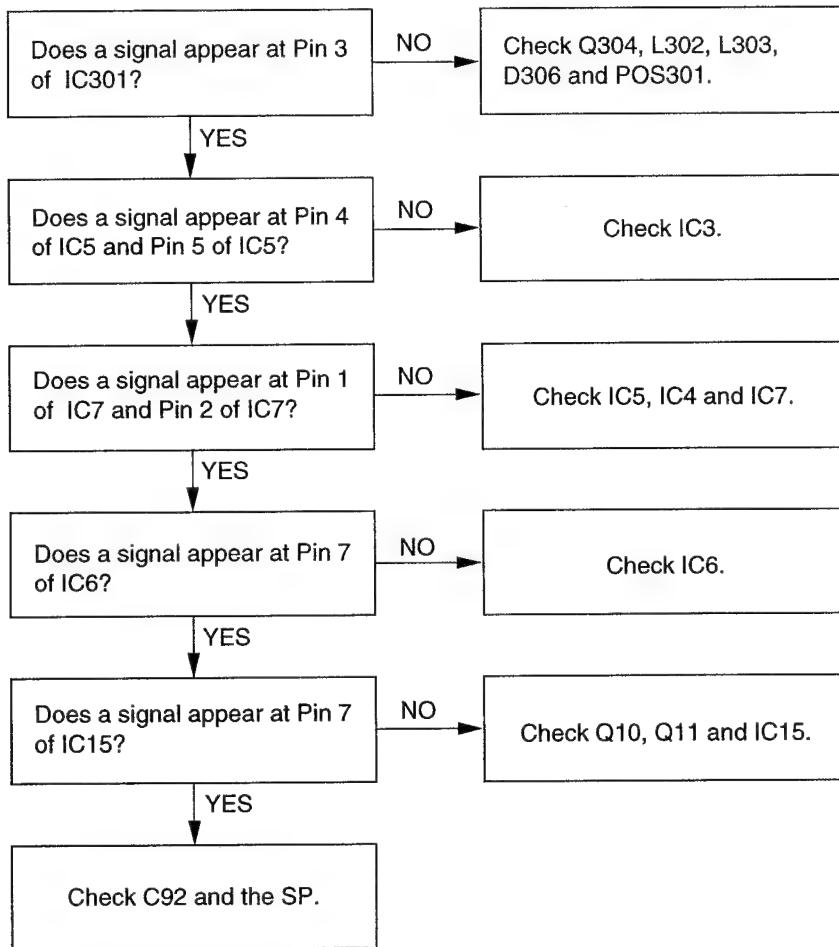
1. Set the Ringer selector to "HIGH".
2. Set the dialing mode selector to "Tone".

Check the unit as shown by following below flow chart.

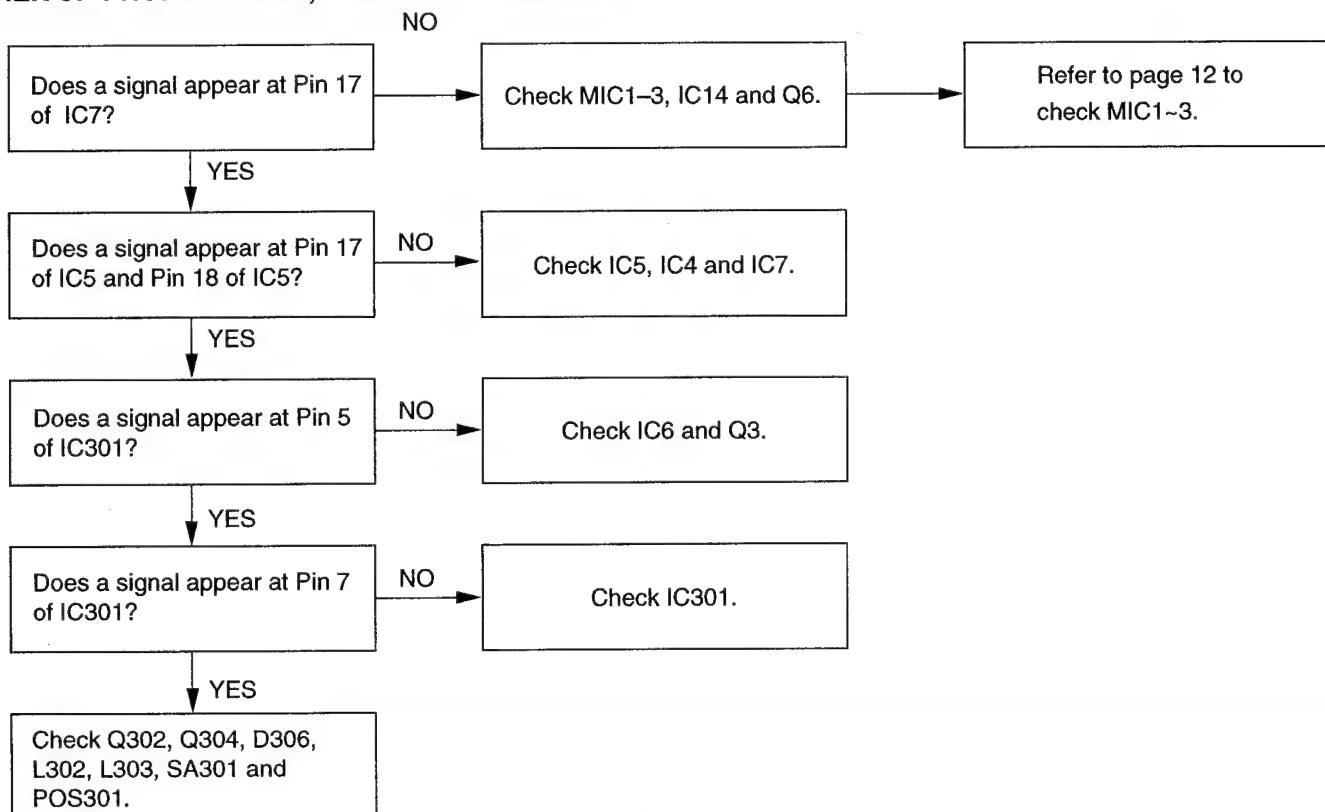
Operation

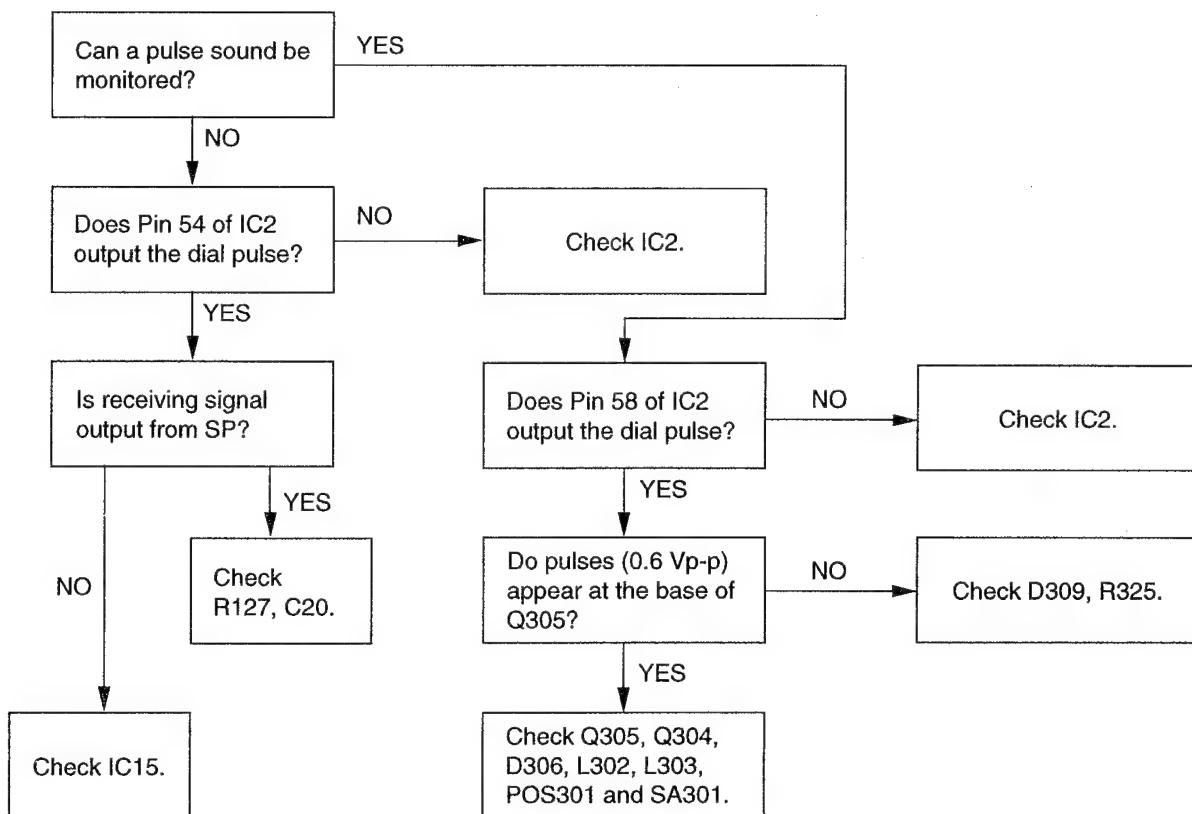
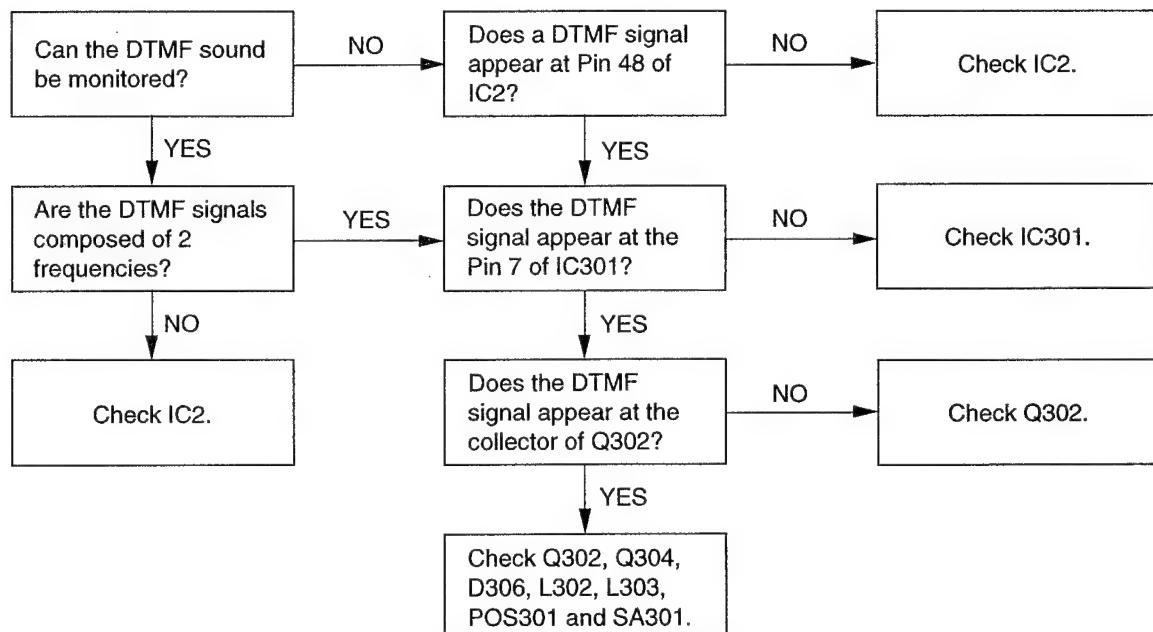


1. WHEN SP-PHONE WORKS, DOES NOT RECEIVE.

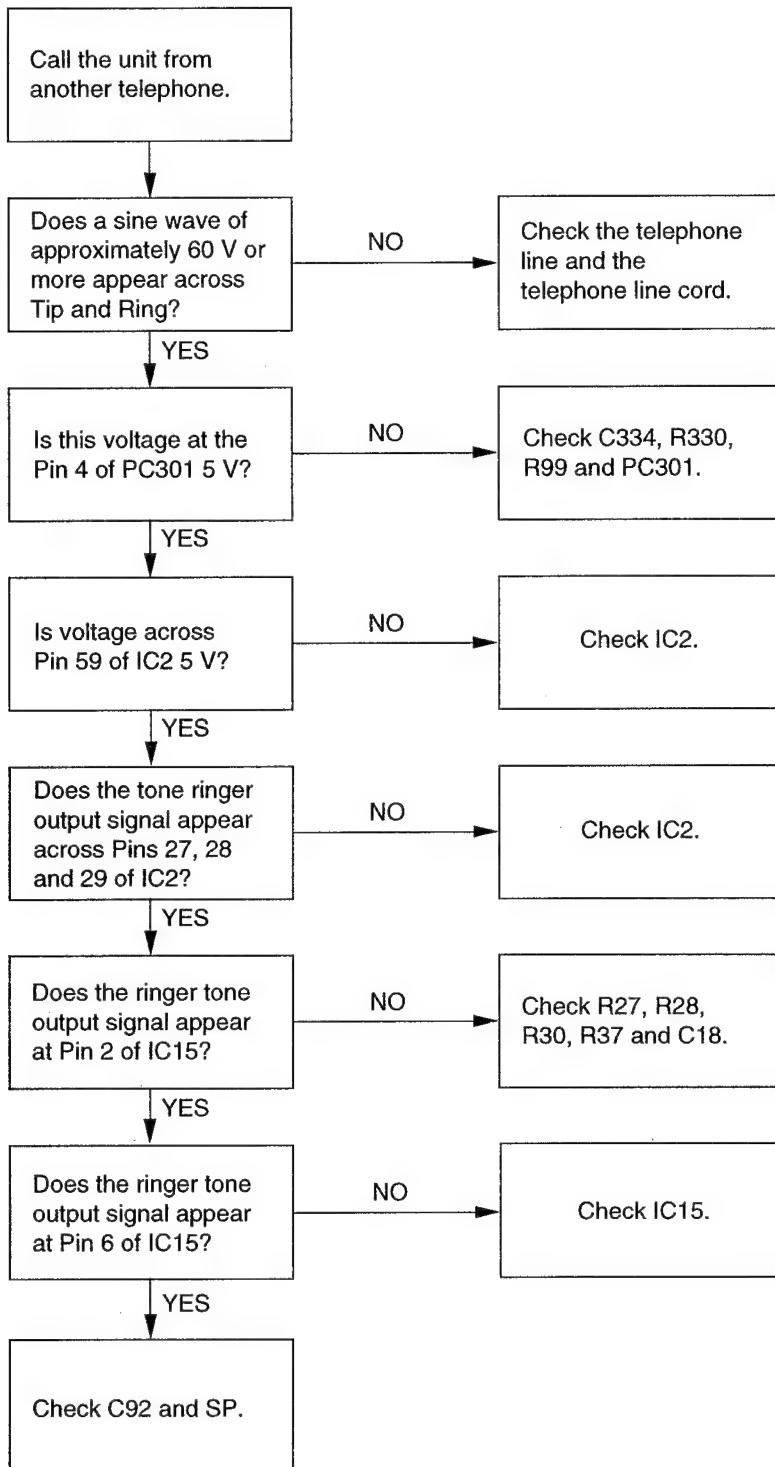


2. WHEN SP-PHONE WORKS, DOES NOT TRANSMIT.

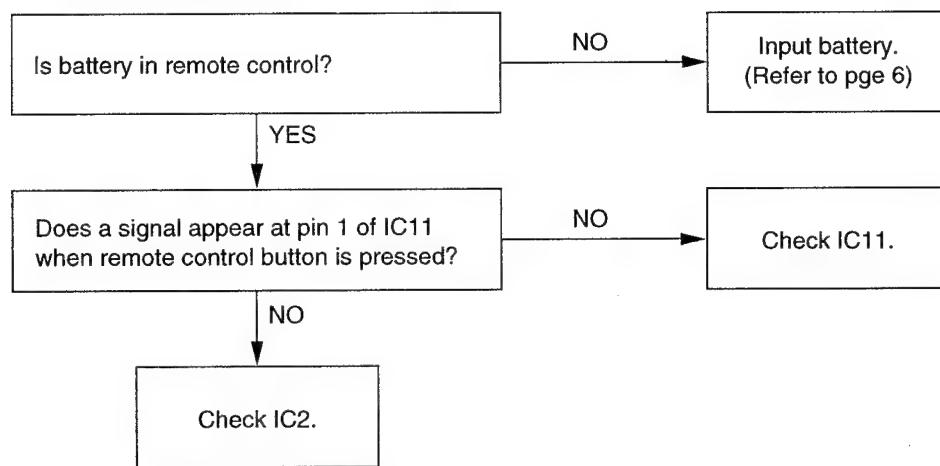


3. PULSE DIALING PROBLEMS**4. TONE DIALING PROBLEMS**

5. NO "RINGING" SOUND WHEN A RING SIGNAL IS INPUT



6. REMOTE CONTROL PROBLEM



Note: When the remote control is wrong, replace it to new remote control (KX-TCA2).
The remote control KX-TCA2 is available through sales route of Panasonic.

CABINET AND ELECTRICAL PARTS LOCATION

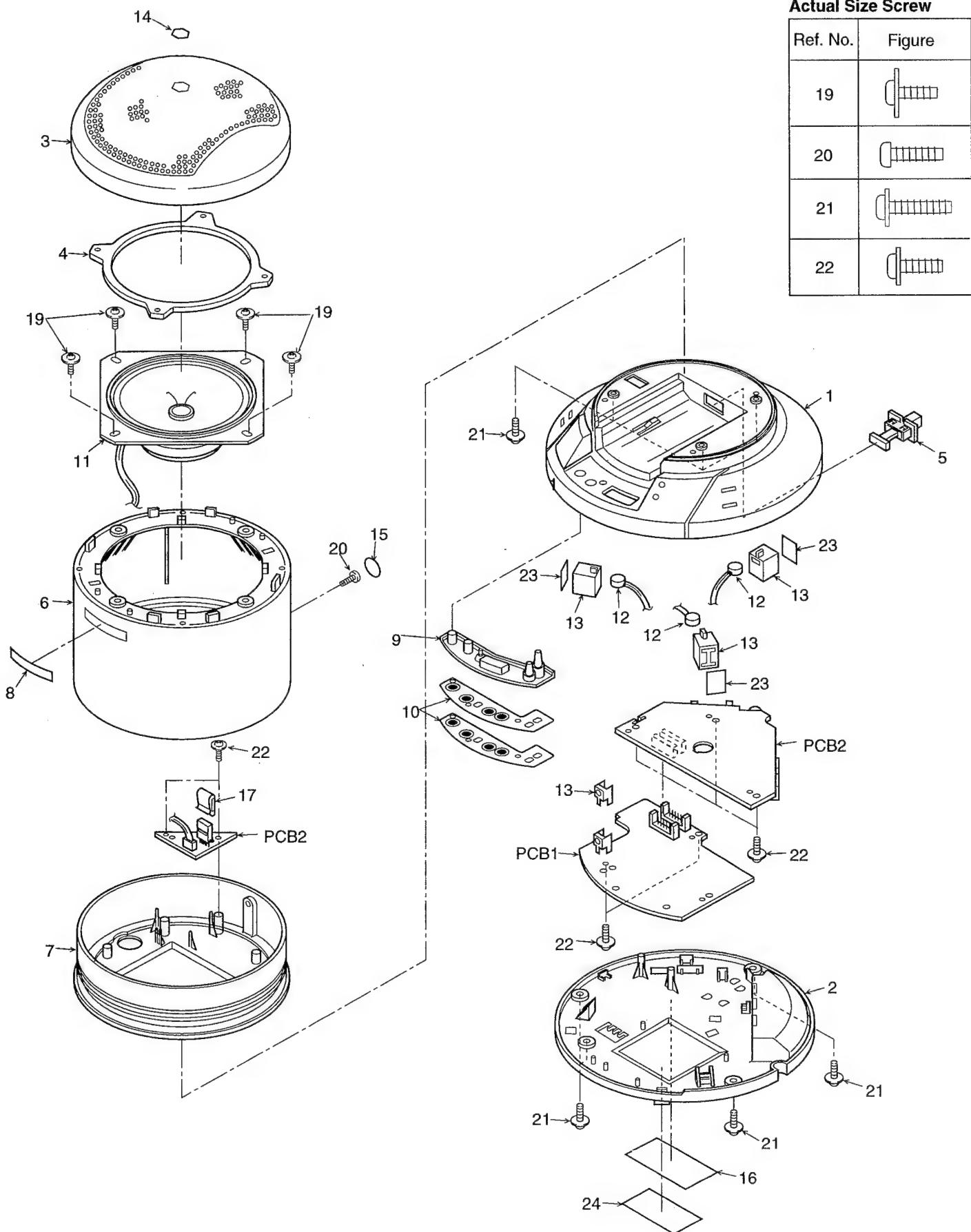


Fig.33

ACCESSORIES AND PACKING MATERIALS

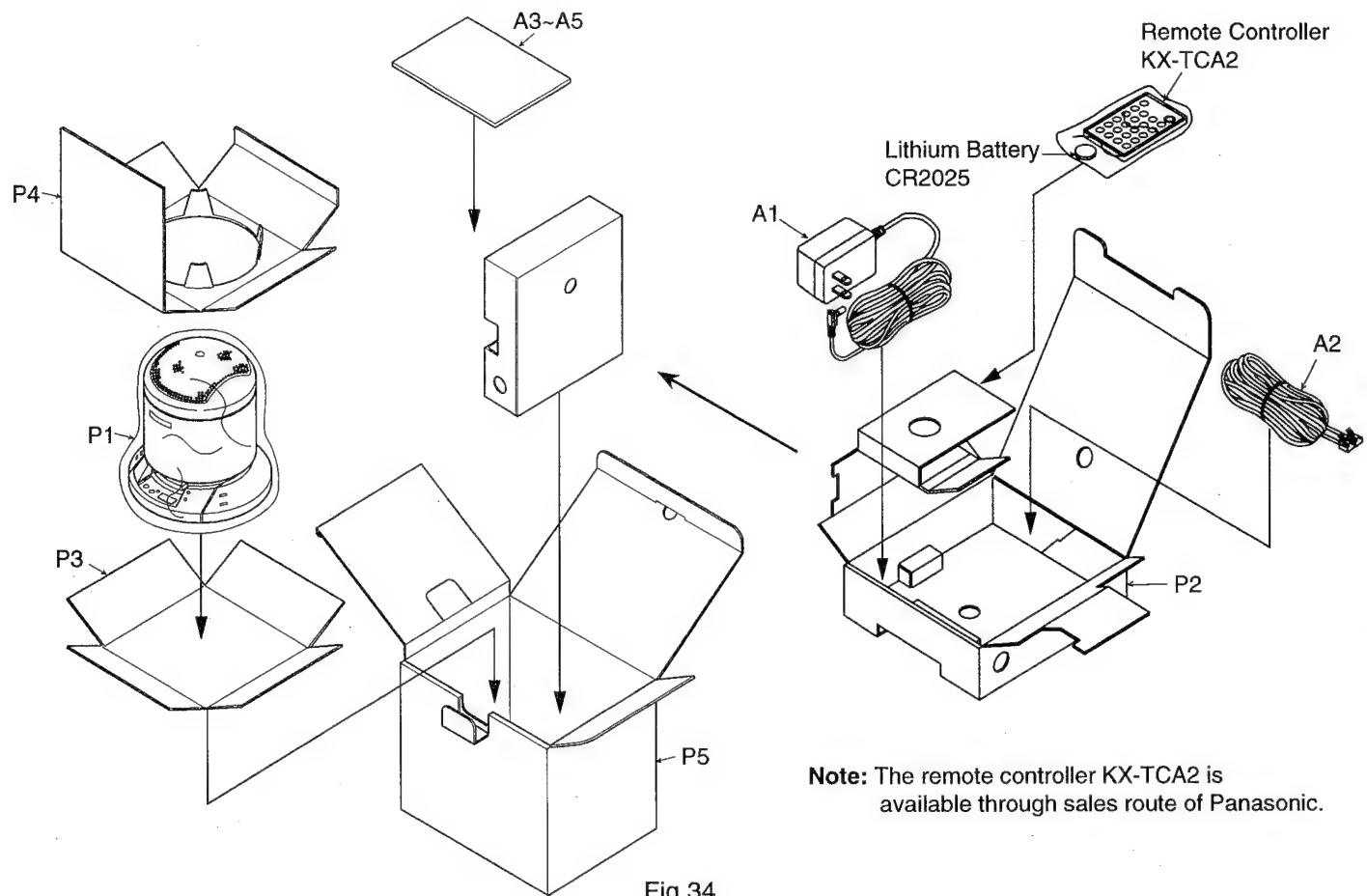


Fig.34

TOOL

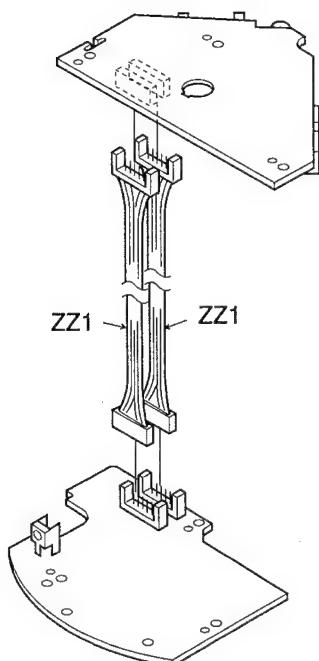


Fig.35

This replacement parts list are U.S.A. version only. Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Model KX-TS700-B

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention.

After the end of this period, the assembly will no longer be available.

2. Important safety notice.

Components identified by a Δ mark special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

3. The S mark indicates service standard parts and may differ from production parts.

4. RESISTORS & CAPACITORS

Unless otherwise specified.

All resistors are in ohms (Ω) K=1000 Ω , M=1000K Ω

All capacitors are in MICRO FARADS (μF) P= $\mu\mu F$

*Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQ4R:Carbon
ERD:Carbon	ERG:Metal Oxide	ERS:Fuseable Resistor
PQRD:Carbon	ER0:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECCD,ECKD,ECBT,PQCB : Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG : Polyester
PQCUV:Chip	ECEA,ECSZ : Electrolytic
ECQMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others		
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V	
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V	
2E:250V	2:200V	1V:35V	1C :16V	1J :63V	
2H:500V		0J:6.3V	1E,25:25V	2A :100V	

Ref. No.	Part No.	Part Name & Description	Pcs/Set
----------	----------	-------------------------	---------

CABINET & ELECTRICAL PARTS

1	PQYM10065Z1	CABINET BODY	1
2	PQYF10104Z1	CABINET	1
3	PQGG10066Z1	SPEAKER COVER	1
4	PQHG10459Z	SPEAKER SHEET	1
5	PQDE10064Z	LATCH	1
6	PQGG10067Z1	SPEAKER BOX	1
7	PQKV10033Z1	HOLDER	1
8	PQGB10001Z	BADGE	1
9	PQBX10274Z	BUTTON	1
10	PQSX10052Z	KEYBOARD SWITCH	1
11	PQAS10P02Y	SPEAKER	1
13	PQMG10019Z	MIC HOLDER	3
14	PQGX10008Z	ORNAMENT	1
15	PQGX10009Z	ORNAMENT	1
16	PQGT12814Z	NAME PLATE,AL	1
17	PQMY10025Z	HEAT SINK	1
18	PQMH10293Z	SENSER HOLDER	1
19	PJHE5065Z	SCREW	4
20	XTB3+10G	SCREW	1
21	XTW3+S12P	SCREW	11
22	XTW3+S8M	SCREW	7
23	PQHS10307Z	MIC COVER	3
24	PQQT10895Z	INDICATION LABEL	1
12	PQWMTS700B	MICROPHONE (MIC1~3)	3

Note:



Please order R16~18 when replacing MIC1~3 (Refer page12).

Ref. No.	Part No.	Part Name & Description	Pcs/Set
ACCESSORIES			
A1	KX-TCA6	AC ADAPTOR	Δ 1
A2	PQJA10072Z	TEL CORD	1
A3	PQQT11156Y	MEMORY CARD	1
A4	PQQW11729Z	QUICK REFERENCE GUIDE	1
A5	PQQX11725Z	INSTRUCTION BOOK	1
PACKING MATERIALS			
P1	PQPP10079Z	PROTECTION COVER	1
P2	PQPN10581Z	ACCESSORY BOX	1
P3	PQPD10341Z	CUSHION	1
P4	PQPD10340Z	CUSHION	1
P5	PQPK12273Z	GIFT BOX	1
TOOLS			
ZZ1	PQZZ9Z12Z	EXTENSION CORD	2
MAIN P.C.BOARD PARTS			
PCB1	PQWP1TS700B	P.C.BOARD ASS'Y (RTL)	1
IC1	PQVI93LC46XI	(ICS)	
IC2	PQVI53MF5000	IC	1
IC3	PQVINJM4558V	IC	1
IC4	PQVIMRD47V1	IC	1
IC5	PQVIMRC47SV2	IC	1
IC6	PQVINJM4558V	IC	1
IC7	PQVIMCL548DW	IC	1
IC8	PQVIS80744NT	IC	1
IC10	PQVINJM4558V	IC	1
IC11	PNA4601M	IC	1
IC14	PQVINJM4558V	IC	1
IC15	PQVINJM2070M	IC	1
Q1	2SD1819A	(TRANSISTORS)	
Q2	2SB1218A	TRANSISTOR(SI)	1
Q3	PQVTFB1J3P	TRANSISTOR(SI)	1
Q9	2SD1819A	TRANSISTOR(SI)	1
Q10	PQVTFB1J3P	TRANSISTOR(SI)	1
Q11	UN5213	TRANSISTOR(SI)	1
D1	MA110	(DIODES)	
D3	MA110	DIODE(SI)	1
D4	MA110	DIODE(SI)	1
D5	MA110	DIODE(SI)	1
D6	MA110	DIODE(SI)	1
D7	MA110	DIODE(SI)	1
D8	MA110	DIODE(SI)	1
D9	MA112	DIODE(SI)	1
D11	MA110	DIODE(SI)	1
D12	MA112	DIODE(SI)	1
D13	MA112	DIODE(SI)	1
D14	PQVDDBR1112H	LED	1
D15	PQVDDBR1112H	LED	1

KX-TS700-B

This replacement parts list are U.S.A. version only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Ref. No.	Part No.	Value	Pcs/Set
D16	PQVDPY1112H	LED	1	R43	ERJ3GEYJ104	100K	1
D17	MA110	DIODE(SI)	1	R44	ERJ3GEYJ104	100K	1
D18	MA8030M	DIODE(SI)	S	R45	ERJ3GEY0R00	0	1
D19	MA8068M	DIODE(SI)	1	R46	ERJ3GEYJ104	100K	1
D20	MA8068M	DIODE(SI)	1	R47	ERJ3GEYJ220	22	1
D21	MA8068M	DIODE(SI)	1	R48	ERJ3GEYJ220	22	1
D22	MA110	DIODE(SI)	1	R49	ERJ3GEYJ221	220	1
D23	MA110	DIODE(SI)	1	R50	ERJ3GEYJ220	22	1
		(COILS)		R51	ERJ3GEYJ220	22	1
L1	PQLQR1M100K	COIL	1	R52	ERJ3GEYJ221	220	1
L2	PQLQR1M100K	COIL	1	R53	ERJ3GEYJ221	220	1
L3	PQLQR1M100K	COIL	1	R54	ERJ3GEYJ221	220	1
		(VARIABLE RESISTORS)		R55	ERJ3GEYJ221	220	1
VR1	PQZ3AN33N	VARIABLE RESISTOR	1	R56	ERJ3GEYJ221	220	1
VR2	PQZ3AN33N	VARIABLE RESISTOR	1	R57	ERJ3GEYJ221	220	1
VR3	PQZ3AN33N	VARIABLE RESISTOR	1	R58	ERJ3GEYJ221	220	1
		(CRYSTALS)		R59	ERJ3GEYJ221	220	1
X1	PQVCE568N9ZC	CRYSTAL OSCILLATOR	1	R60	ERJ3GEYJ221	220	1
X2	PQVBCST800MG	CRYSTAL OSCILLATOR	1	R61	ERJ3GEYJ221	220	1
		(CONNECTORS)		R62	ERJ3GEYJ221	220	1
CN1	PQJP09B52Z	CONNECTOR	1	R63	ERJ3GEYJ221	220	1
CN2	PQJP09B52Z	CONNECTOR	1	R64	ERJ3GEYJ272	2.7K	1
		(RESISTORS)		R65	ERJ3GEYJ220	22	1
R1	ERJ3GEYJ472	4.7K	1	R66	ERJ3GEY0R00	0	1
R2	ERJ3GEYJ561	560	1	R67	ERJ3GEYJ104	100K	1
R3	ERJ3GEYJ122	1.2K	1	R68	ERJ3GEYJ220	22	1
R4	ERJ3GEYJ561	560	1	R69	ERJ3GEYJ220	22	1
R5	ERJ3GEYJ334	330K	1	R70	ERJ3GEYJ220	22	1
R6	PQ4R10XJ000	0	1	R71	ERJ3GEYJ154	150K	1
R7	ERJ3GEY0R00	0	1	R72	ERJ3GEYJ104	100K	1
R8	ERJ3GEY0R00	0	1	R73	ERJ3GEYJ124	120K	1
R11	ERJ3GEYJ334	330K	1	R74	ERJ3GEYJ124	120K	1
R12	ERJ3GEYJ102	1K	1	R75	ERJ3GEYJ220	22	1
R13	ERJ3GEYJ105	1M	1	R76	ERJ3GEYJ473	47K	1
R14	ERJ3GEYJ102	1k	1	R77	ERJ3GEYJ184	180K	1
R15	ERJ3GEYJ224	220K	1	R78	ERJ3GEYJ473	47K	1
R16	ERJ3GEYJ391	390 (for MIC2)	1	R79	ERJ3GEYJ823	82K	1
R17	ERJ3GEYJ391	390 (for MIC3)	1	R81	ERJ3GEYJ102	1K	1
R18	ERJ3GEYJ391	390 (for MIC1)	1	R82	ERJ3GEYJ104	100K	1
R19	ERJ3GEYJ102	1K	1	R83	ERJ3GEYJ823	82K	1
R20	ERJ3GEYJ104	100K	1	R84	ERJ3GEYJ104	100K	1
R21	ERJ3GEYJ103	10K	1	R85	ERJ3GEYJ104	100K	1
R22	ERJ3GEYJ102	1K	1	R87	ERJ3GEYJ823	82K	1
R23	ERJ3GEYJ103	10K	1	R89	ERJ3GEYJ473	47K	1
R24	ERJ3GEYJ102	1K	1	R90	ERJ3GEYJ124	120K	1
R25	ERJ3GEYJ102	1K	1	R91	ERJ3GEYJ104	100K	1
R26	ERJ3GEYJ102	1K	1	R93	ERJ3GEYJ104	100K	1
R27	ERJ3GEYJ153	15K	1	R94	ERJ3GEYJ123	12K	1
R28	ERJ3GEYJ153	15K	1	R95	ERJ3GEYJ682	6.8K	1
R29	ERJ3GEY0R00	0	1	R98	ERJ3GEYJ122	1.2K	1
R30	ERJ3GEYJ332	3.3K	1	R99	ERJ3GEYJ223	22K	1
R32	ERJ3GEY0R00	0	1	R100	ERJ3GEYJ221	220	1
R33	ERJ3GEYJ392	3.9K	1	R103	ERJ3GEYJ472	4.7K	1
R34	ERJ3GEYJ104	100K	1	R104	ERJ3GEYJ562	5.6K	1
R35	ERJ3GEYJ823	82K	1	R105	ERJ3GEYJ102	1K	1
R36	ERJ3GEYJ393	39K	1	R106	ERJ3GEYJ392	3.9K	1
R37	ERJ3GEYJ683	68K	1	R107	PQ4R10XJ8R2	8.2	1
R38	ERJ3GEYJ104	100K	1	R108	ERJ3GEYJ104	100K	1
R39	ERJ3GEYJ104	100K	1	R109	ERJ3GEYJ682	6.8K	1
R40	ERJ3GEYJ104	100K	1	R110	ERJ3GEYJ272	2.7K	1
R41	ERJ3GEYJ104	100K	1	R111	ERJ3GEYJ104	100K	1
R42	ERJ3GEYJ104	100K	1	R113	ERJ3GEYJ104	100K	1
				R114	ERJ3GEYJ124	120K	1
				R115	ERJ3GEYJ103	10K	1
				R116	ERJ3GEYJ103	10K	1
				R117	ERJ3GEYJ103	10K	1
				R118	ERJ3GEYJ331	330	1
				R119	ERJ3GEYJ331	330	1
				R120	ERJ3GEYJ331	330	1
				R121	ERJ3GEYJ224	220K	1
				R122	ERJ3GEYJ473	47K	1
				R124	ERJ3GEYJ104	100K	1
				R125	ERJ3GEYJ104	100K	1

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Ref. No.	Part No.	Value	Pcs/Set	Ref. No.	Part No.	Value	Pcs/Set
R126	ERJ3GEYJ472	4.7K	1	C71	ECST0JV107	100	1
R127	ERJ3GEYJ224	220K	1	C72	ECUV1C104KBV	0.1	1
R133	ERJ3GEYJ473	47K	1	C73	ECUV1H271KBV	270P	1
R134	ERJ3GEYJ473	47K	1	C74	ECUV1C104KBV	0.1	1
R201	PQ4R10XJ103	10K	1	C75	ECUV1C104KBV	0.1	1
R202	ERJ3GEYJ224	220K	1	C77	ECUV1H561JCV	560P	S 1
		(CAPACITORS)		C78	PQCUV1C105ZF	1	1
C1	ECST0JC476	47	1	C79	PQCUV1C105ZF	1	1
C2	ECUV1H102KBV	0.001	1	C80	ECUV1H561JCV	560P	S 1
C3	ECUV1C104ZVF	0.1	1	C81	ECUV1H182KBV	0.0018	1
C4	ECST0JC476	47	1	C82	ECUV1C104ZVF	0.1	1
C5	ECUV1H103KBV	0.01	S 1	C83	ECUV1H223KBV	0.022	S 1
C6	ECUV1C104ZVF	0.1	1	C84	ECEA0JU102	1000	1
C7	ECUV1C104KBV	0.1	1	C85	PQCUV1E224MD	0.22	S 1
C8	ECUV1C104KBV	0.1	1	C86	ECUV1H100DCV	10P	S 1
C9	ECUV1H682KBV	0.0068	1	C87	ECUV1H392KBV	0.0039	1
C10	ECUV1C104ZVF	0.1	1	C88	ECUV1H221JCV	220P	1
C12	ECUV1C104ZVF	0.1	1	C89	ECUV1C104KBV	0.1	1
C13	ECEA1AU101	100	S 1	C90	ECUV1C104KBV	0.1	1
C14	EECW5R5D473	0.047	S 1	C91	PQCUV1E224MD	0.22	S 1
C15	ECUV1H103KBV	0.01	1	C92	ECEV1AA101	100	1
C16	ECUV1H222KBV	0.0022	1	C93	ECUV1C104KBV	0.1	1
C17	ECUV1H333KDV	0.033	S 1	C96	ECEA1AU102	1000	1
C18	ECUV1H103KBV	0.01	1	C97	ECEV1AA101	100	1
C19	ECST0JC476	47	1	C98	PQCUV1C105ZF	1	1
C20	ECUV1H222KBV	0.0022	1	C99	PQCUV1C105ZF	1	1
C21	ECUV1H102KBV	0.001	1	C100	PQCUV1C105ZF	1	1
C22	ECUV1H102KBV	0.001	1	C101	ECUV1H102KBV	0.001	1
C23	ECUV1H102KBV	0.001	1	C102	ECUV1H102KBV	0.001	1
C24	ECUV1C104KBV	0.1	1	C103	ECUV1H102KBV	0.001	1
C25	ECUV1H102KBV	0.001	1	C104	ECUV1C104KBV	0.1	1
C26	ECUV1H102KBV	0.001	1	C105	ECUV1C104KBV	0.1	1
C27	ECUV1C104ZVF	0.1	1	C106	ECUV1H223KBV	0.022	S 1
C28	ECUV1C104ZVF	0.1	1	C107	ECUV1H100DCV	10P	S 1
C29	ECUV1H102KBV	0.001	1	C108	ECUV1H100DCV	10P	S 1
C30	ECUV1H102KBV	0.001	1	C109	ECUV1H152KBV	0.0015	1
C31	ECUV1H102KBV	0.001	1				
C32	ECUV1H102KBV	0.001	1				
C33	ECUV1C104ZVF	0.1	1				
C34	ECUV1H102KBV	0.001	1				
C35	ECUV1H102KBV	0.001	1				
C36	ECUV1H102KBV	0.001	1				
C37	ECUV1H102KBV	0.001	1				
C39	ECUV1C104ZVF	0.1	1				
C40	ECEV1AA101	100	1				
C41	ECUV1C334ZVF	0.33	1				
C42	ECUV1C334ZVF	0.33	1				
C43	ECUV1C104ZVF	0.1	1				
C44	ECUV1C104ZVF	0.1	1				
C45	ECUV1H272KBV	0.0027	1				
C46	ECUV1H272KBV	0.0027	1				
C47	ECUV1H240JCV	24P	1				
C48	ECUV1H391JCV	390P	1				
C49	PQCUV1C105ZF	1	1				
C50	ECUV1H240JCV	24P	S 1				
C51	ECUV1H223KBV	0.022	1	D301	1SS119	(DIODES)	1
C53	ECUV1C104ZVF	0.1	1	D302	1SS119	DIODE(SI)	1
C54	ECUV1C104ZVF	0.1	1	D303	MA4180	DIODE(SI)	1
C55	ECUV1H182KBV	0.0018	1	D305	MA4068	DIODE(SI)	1
C56	ECEV1AA101	100	1	D306	PQVDS1ZB40F1	DIODE(SI)	S 1
C57	ECUV1H222KBV	0.0022	1	D307	MA4068	DIODE(SI)	1
C58	ECUV1H222KBV	0.0022	1	D309	1SS119	DIODE(SI)	1
C59	ECUV1H101JCV	100P	1	D404	MA4068	DIODE(SI)	1
C60	ECEV0JA470	47	1	D408	MA4091	DIODE(SI)	1
C61	ECEV1AA101	100	1				
C64	ECUV1C104ZVF	0.1	1				
C65	ECEV1AA101	100	1				
C66	ECUV1C104KBV	0.1	1				
C68	PQCUV1C105ZF	1	1	SW301	PQSS3A17W	(SWITCHES)	1
C70	ECUV1C104ZVF	0.1	1	SW302	PQSS2A27W	SWITCH	1

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Ref. No.	Part No.	Value	Pcs/Set	Ref. No.	Part No.	Value	Pcs/Set
L302	ELEPK100KA	(COILS AND TRANSFORMER)		C305	PQCUV1E104MD	0.1	S 1
L303	ELEPK100KA	COIL	▲ 1	C307	PQCUV1H221JC	220P	S 1
L304	ELEV220KA	COIL	▲ 1	C308	PQCUV1E104MD	0.1	S 1
L305	ELEV220KA	COIL	1	C310	PQCUV1C105ZF	1	1
T301	PQLT8D4A	TRANSFORMER	1	C311	ECEA1CU331	330	1
		(CONNECTORS)		C313	ECEA1CKS100	10	▲ 1
CN301	PQJS09B04Z	CONNECTOR	1	C314	PQCUV1H102J	0.001	▲ S 1
CN302	PQJS09B04Z	CONNECTOR	1	C315	ECEA1EK470	47	▲ S 1
CN303	PQJP4D9Z	CONNECTOR	1	C316	PQCUV1E223KB	0.022	▲ 1
CN401	PQJS04P21Z	CONNECTOR	1	C317	ECEA1HKS010	1	S 1
		(JACKS)		C318	ECEA1CSS221	220	▲ 1
JJ301	PQJJ2TAA2Z	JACK, LINE/TEL	▲ 1	C319	PQCUV1H102J	0.001	▲ S 1
JJ302	PQJJ1B4Y	JACK, AC ADAPTOR	1	C320	PQCUV1H103ZF	0.01	▲ 1
JJ303	PQJJ1D5Z	JACK, REC OUT	1	C321	ECEA1AU101	100	1
		(OTHERS)		C323	PQCUV1C105ZF	1	▲ 1
SA301	PQVDDSS301L	VARISTOR	▲ 1	C325	PQCUV1H103ZF	0.01	1
SA302	PQVDDSS301L	VARISTOR	▲ 1	C326	ECEA1CU471	470	1
PC301	PQVIPC814K	PHOTO ELECTRIC TRANSDUCER	▲ 1	C329	ECKD2H681KB	680P	▲ S 1
POS301	PQRPAR390N	THERMISTOR	▲ 1	C330	ECKD2H681KB	680P	▲ S 1
		(RESISTORS)		C332	PQCUV1H103ZF	0.01	1
R301	ERJ3GEYJ104	100K	1	C333	PQCUV1H103ZF	0.01	1
R302	ERJ3GEYJ104	100K	1	C334	ECQE2E224JZ	0.22	▲ S 1
R303	ERJ3GEYJ104	100K	1	C335	PQCUV1H103ZF	0.01	1
R304	ERJ3GEYJ223	22K	1	C336	PQCUV1H103ZF	0.01	1
R305	ERJ3GEYJ472	4.7K	1	C338	ECEA1CKS470	47	S 1
R306	ERJ3GEYJ124	120K	1	C422	PQCUV1E104MD	0.1	S 1
R307	ERJ3GEYJ223	22K	1	C427	ECEA1AU101	100	1
R308	ERJ3GEYJ682	6.8K	1	C428	PQCUV1E104MD	0.1	S 1
R309	ERJ3GEYJ473	47K	1	C431	ECEA1EU101	100	S 1
R310	ERJ3GEYJ473	47K	1				
R311	ERJ3GEYJ101	100	1				
R312	ERJ3GEYJ153	15K	1				
R313	ERJ3GEYJ102	1K	▲ 1				
R314	ERJ3GEY0R00	0	▲ 1				
R315	ERJ3GEYJ333	33K	▲ 1				
R316	ERDS1TJ330	33	▲ S 1				
R317	ERJ3GEYJ680	68	▲ 1				
R318	ERJ3GEYJ681	680	▲ 1				
R319	ERJ3GEYJ682	6.8K	▲ 1				
R320	ERJ3GEYJ473	47K	▲ 1				
R321	ERJ3GEYJ153	15K	▲ 1				
R322	PQ4R10XJ472	4.7K	▲ 1				
R323	PQ4R10XJ104	100K	▲ 1				
R324	ERJ3GEYJ104	100K	▲ 1				
R325	ERJ3GEYJ473	47K	▲ 1				
R327	ERJ3GEY0R00	0	1				
R329	PQ4R10XJ103	10K	1				
R330	ERJ3GEYJ473	47K	▲ 1				
R331	ERJ3GEYJ223	22K	1				
R426	ERDS1TJ102	1K	S 1				
R428	ERDS1VJ681	680	1				
J17	PQ4R10XJ000	0	1				
J18	PQ4R10XJ000	0	1				
J19	PQ4R10XJ000	0	1				
		(CAPACITORS)					
C302	PQCUV1E104MD	0.1	S 1				
C303	PQCUV1E104MD	0.1	S 1				
C304	PQCUV1H681JC	680P	S 1				